THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY
March 6, 1989 · Vol. XXIII · No. 9 · 152 Pages · $2/Copy · $44/Year

COMPUTERWORLD

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Thrift crisis drains MIS coffers

Staffers update resumes as job outlook dims under federal takeover plan

BY DOUGLAS BARNEY
and WILLIAM BRANDEL
CW STAFF

First, the nationwide savings and loan crisis threatened MIS budgets. Now, with recent U.S. government takeovers, including 37 just last week, MIS jobs at 73 thrifts hang in the lurch.

After speaking with executives from a dozen thrifts recently taken over by the government, *Computerworld* found MIS organizations struggling to contain costs while maintaining adequate services. Closer to their hearts, these professionals are wondering whether their institutions will be sold or liquidated with their jobs in tow.

"We have no idea what is going to happen," said Janice Merva, MIS manager and the sole remaining MIS employee at Westwood Savings and Loan Association in Los Angeles. She runs the thrift's IBM System/36 and manages its 25 personal computers. For now, MIS is on pins and needles while the government and potential investors work out the thrifts' fate.

At the request of the Bush administration, the Federal Deposit Insurance Corp. has grabbed the reins of these institutions because of their enormous losses and is now targeting more than 100 other savings and loans for

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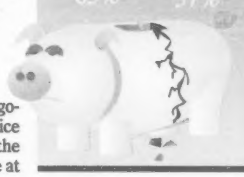
Savings and liabilities

Texas and the Midwest account for more than 60% of the 73 savings and loans taken over by government regulators



Region	Number of institutions	Assets ($M)
Midwest	31	11,344
Texas	15	16,126
South/ Southeast	13	5,867
West/ Southwest	11	9,777
Northeast	3	697

NAS, users find relief in Hitachi

BY J. A. SAVAGE
CW STAFF

SANTA CLARA, Calif. — It wasn't real. It wasn't Memorex.

Memorex Telex N.V. last week lost its bid to buy half of National Advanced Systems from National Semiconductor Corp. after missing two deadlines. Instead, NAS was sold in its entirety to a joint venture between Hitachi Ltd. and Electronic Data Systems Corp.

Having sunk millions of dollars into equipment, NAS customers watched the buyout scenario closely; most polled by *Computerworld* last week said they expect to be unaffected by the change in ownership and are grateful that NAS has new backing (see story page 4).

NAS has run a distant third in the plug-compatible mainframe market — behind Amdahl Corp. and IBM — in the last couple of years. To many, the buyout appears destined to help NAS eke out a bigger slice of the mainframe market.

Not only will it "give the company a bigger shot," said Bonnie Digrius, an analyst at Infocorp in

Continued on page 4

Intel enters RISC drag race

BY JULIE PITTA
CW STAFF

SAN FRANCISCO — Intel Corp. grabbed the spotlight in the reduced instruction set computing arena last week with a 64-bit microprocessor that industry watchers said sets a new standard for RISC performance.

Intel's I860 RISC processor, which squeezes more than a million transistors onto a single chip, drew praise from industry analysts. "It puts minisupercomputer performance at the microprocessor level," said Andrew Allison, editor of "RISC Management," an industry newsletter.

While the chip is scheduled to ship in production quantities in the third quarter, workstations based on the I860 are not expected to become available until mid-1990. This does not appear to have dimmed enthusiasm for the technology, however.

"I think this represents the next generation," said Edwin Sund, a member of the personal computer support team at Weyerhaeuser Information Systems. "We're already encroaching on the minicomputer area. With this, we'll end up blasting it away. I can't wait to see it in a system."

IBM said it will work with Intel to develop a 32-bit bus master card for IBM's Personal System/2. Pedro Martinez, an IBM Wizard Project program manager, said the card will increase the PS/2's processing speed and provide graphics capabilities. He

Continued on page 7

Earth database compiled under the dome

BY J. A. SAVAGE
CW STAFF

In the Dark Ages, they would have been burned as heretics for taking life into their own hands this way. But the 21st century is not that far off, and Space Biospheres Ventures in Oracle, Ariz., is taking on a godlike role as it constructs a giant terrarium in the desert. It is leveraging a massive database to catalog much of the world's flora and fauna and installing computers for modeling and tracking plant, animal *and* human interaction.

Noah's ark, it ain't.

Biosphere II, the project's name, is an attempt to re-create the Earth's biosphere on two acres. Since its researchers cannot play Noah and put two of everything in such a small space, they are choosing just the right variety of hydroponically cultured plants, insects — even termites and mosquitoes — fish, birds and other animal classes from all over the world. More than 200 scientists are contributing to the Unix-based database.

MARVIN COLLINS

Biosphere II's *hydroponic agriculture operation*

When completed late next year, eight Biospherians (the humans) will be added to the mix, and the whole facility will be sealed up for two years. No way out will be provided for anyone, barring total collapse of the systems. Medical and dental care will be provided by the Biospherians.

Once the doors are shut, microprocessor-based sensors

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NEWSPAPER

SECOND CLASS MAIL

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141 Hackers collared in West Germany for alleged computer espionage.

Quotable

"In the time it took to have a contractor deliver seven volumes telling us what kind of work we did here and how we might automate it, we automated it."

LEE MERCER
DEPARTMENT OF COMMERCE

On delays inherent in the federal government's grand design scheme. See story page 87

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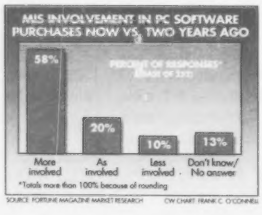

ARCHIVE

It was "General" H. Ross Perot to the rescue 10 years ago as he freelanced a commando raid into Iran to liberate a pair of EDS engineers . . . But 10 years before that, patriotism took a back seat to survival as computer science grads flocked to firms handling special government contracts to escape the military draft . . . And it was 18 years ago this month that investigators blamed the disappearance of 2,800 railroad boxcars on a computer. Some kind of cache memory they had back then.

Bringing a sense of proportion to government projects. Page 87.

MANUELLO PAGANELLI/WOODFIN CAMP

EXECUTIVE BRIEFING

■ **NAS mainframe users are breathing easier** after a joint venture between Hitachi and EDS rescued the mainframe maker from an uncertain fate. Memorex Telex was dumped after missing two deadlines in its bid to buy NAS following delays in obtaining financing. But Hitachi and EDS are expected to bring financial muscle and distribution to the table, and buyers may now find more expansive offerings from EDS' systems integration business. Page 1.

■ **What would you do** if the government took over your IS site? For MIS professionals at savings and loan organizations, it has meant stalled plans, canceled contracts and an uncertain future. Many are looking for jobs elsewhere. Page 1.

■ **Abbott Labs puts its corporate records on-line** and junks a half-million index cards in the process. The benefits: reduced storage space, more flexible retrieval and faster response. Page 25.

■ **You don't need a mainframe any more.** That's what many fast-growing firms are finding, and they're willing to consider staying within minicomputer lines, switching to Unix-based systems or adding application-specific ones. Page 23.

■ **New interoperability options** should emerge from a flurry of agreements between systems makers and network vendors. DEC and Apollo have joined forces in a deal aimed at distributed applications development, page 12, while 3Com and Hewlett-Packard are already displaying the fruits of their linkup labors announced two weeks ago, page 12. Caught in the open systems squeeze, Novell fought back last week by mustering an army of third-party support for its new portable version of Netware, which opens more Novell options to multivendor sites, page 141.

■ **How much planning is too much?** The federal government thinks it has overplanned systems purchases in the past and is revamping policies to emphasize bite-size procurements. Page 87.

■ **"A systems integrator** wants you to give him a check and let him run. That's insanity," says one IS director about the boom in systems integration. Just because contractors can do the job doesn't mean you should always use one. IS needs to keep a firm hand on the rudder, even when the systems integrator says he can do it all, page 99. Lucrative career options in systems integration beckon MIS veterans, but some recruiters fret that the IS pros don't know how to sell services, page 122.

■ **Managing programmers** means walking a thin line in the age of "Theory Z" management. This new approach stresses shared responsibility for software quality. Page 19.

■ **Profile: Susan Merser-eau,** head of Weyerhaeuser Information Systems (WIS) runs the information systems arm of the $7 billion forest products giant. In addition to running a decentralized MIS organization, WIS serves outside clients, including Chevron Corp., that account for about 15% of WIS' business. Page 79.

■ **Buying software developed by other users** may be hazardous to your health. That's often where you can get the most functionality for niche packages, but you may risk a long-term lack of support. Page 131.

■ **Bargains await IBM customers** as third parties scramble to match its service moves. Service providers are luring buyers with more flexible plans and less paperwork, while AS/400 memory makers last week chopped prices by as much as 40% before their products were even announced. Page 140.

■ **Expert systems are something special** at American Airlines. The organization is working on knowledge-based programs to help avoid overbooking and reroute planes in bad weather. Its frequent-flier records are also being moved to image processing. Page 8.

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NAS

FROM PAGE 1

Santa Clara, Calif., but "there is a trend toward systems integrators to plan and architect hardware and software for an entire corporation. EDS' ownership would not only feed that trend but would act as an alternative channel of distribution."

Hitachi first made an offer to buy NAS in December from owner National Semiconductor Corp. but lost out to Memorex Telex. "We were not up to the price," said Yasushi Sayama, a spokesman for Hitachi America Ltd. in Tarrytown, N.Y.

Enough, but too late

But by Feb. 24, Hitachi had teamed up with EDS and offered $398 million in cash for NAS in its entirety. That same day, Memorex notified National Semiconductor that it had finally come up with the financing for its original offer, but that was apparently too late.

"It was a very competitive offer and we decided not to pursue it," said Memorex spokeswoman Julie Gentz, referring to the Hitachi-EDS bid. "We could have bid at the time, but the price was too high for us."

Hitachi and EDS will retain 80% and 20% of NAS' ownership, respectively. The percentages will stay constant, but the size of the pie will diminish because promptly after the first acquisition, Hitachi and EDS will sell off NAS' European operations to Comperex, according to Hitachi. Currently, Comperex sells Hitachi equipment in the same markets as NAS.

EDS subcontracts out hardware to all the PCMs, said Cathie Hargett, an EDS spokeswoman. "While IBM claims we are their biggest customer, we have never said that. We are vendor-independent, and that won't change."

All in the family

Despite EDS' claims, Hitachi expects the relationship to open the door wider for Hitachi sales to EDS, according to company spokesman Kazuya Hanazuka. Digrius and other analysts said they assume EDS will have a greater tendency to subcontract with NAS than with other vendors. "They can deny it all they want, but you shop from your relatives first," said Dale Kutnick, an analyst at The Meta Group in Westport, Conn.

Amdahl downplayed the potential loss of its share of EDS' business, although Drexel Burnham Lambert, Inc. analyst Peter Labe said that it represented 3% to 4% of the company's total revenue of $1.8 billion, or more than $50 million.

"We assume our business with [EDS] will diminish," stated John Lewis, Amdahl's chief executive officer.

EDS participation in the buyout appears to be significant on a level other than that of a systems integrator. Its minority ownership eases some of the concern about Japanese companies making inroads into the U.S. marketplace.

Since the talks during Hirohito's funeral, the U.S. political climate appears to be thawing as far as receptiveness to Japanese investment is concerned. But at least one analyst thinks users' fears will be stirred in the wake of the buyout. "Americans don't like to buy from overseas suppliers," Labe said. If users are not already anxious about foreign ownership, "I think IBM will help them reach that conclusion."

Another concern is the potential for price hikes. Selling a Hitachi machine in the U.S. is not as lucrative as selling one in West Germany because of the different relative values of the currency.

Because of the dollar's declining value compared with the yen, Hitachi would have to sell the machine for a higher price in the U.S. to make the same profit.

Hitachi, however, said it will basically ignore the currency or potential profit difference and not raise prices in the U.S.

Japanese ownership aside, NAS analysts have nothing but praise for the deal and say the customer is likely to be better off with the backing of the two companies, which are considered to be in a more enviable economic position than Memorex.

Wealthy relatives

"It's like having two rich uncles," said Bob Djurdjevic, president of Annex Research, a Phoenix, Ariz., mainframe consultant. He said that, unlike the Memorex deal, the new owners will not need to take on NAS' debt from National Semiconductor.

In fact, since last Monday, while NAS' employees remain under the aegis of National Semiconductor, the company has been managed for the benefit or loss of the new owners.

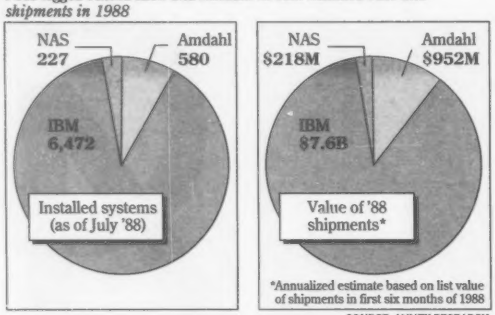
Indeed, NAS is being adopted by a wealthy family. Hitachi's revenue approaches IBM's at about $50 billion per year, according to the company. Its computer operations alone grossed approximately $7.4 billion.

EDS had revenue of $4.8 billion last year. By contrast, NAS estimates sales will be $800 million in this fiscal year.

The future of current NAS management is still nebulous in the buyout plan. The Hitachi spokesman would not comment on any change but did say, "Obviously, someone from Hitachi will be sent in, and EDS will send a person." EDS would not verify any management specifics.

Trailing edge

NAS logged behind IBM and Amdahl in both installed base and shipments in 1988



SOURCE: ANNEX RESEARCH
CW CHART: JOHN YORK

Users face new NAS backers

Analysts may say that NAS users are confused by the vacillating reports of new ownership for the firm, but users contacted by *Computerworld* claimed they were not confused at all. Rather, they were relieved, and none said they were terribly concerned about foreign ownership.

"It's somewhere between a nonevent and a good event," said George Hess, vice-president of systems and planning at Ingersoll Milling Machine Co. in Rockford, Ill. He added that throughout the negotiations, he was kept informed "without the slightest problem."

Others were slightly more perturbed. "You're obviously concerned when you see these things in the papers, but if anything, NAS went overboard to make sure we were informed," said Richard Lester, vice-president of information services at Associated Grocers, Inc. in Seattle. The only concern Lester had about Hitachi Ltd. ownership is that it stay 100% IBM-compatible, because it offers noncompatible systems in Japan.

Peter Hill, senior vice-president of base technology operations at Bank America Corp. in San Francisco, was also concerned at first. The Hitachi deal was a relief for Hill, and he is unconcerned about Japanese ownership. "It's a global economy. We offer banking services in Japan."

The "buy American" philosophy was more important to Chevron Corp.'s Dave Nielson, manager of technical evaluation, but not important enough to give up on NAS. "We'd prefer to buy American where we can until the economics make a little sense. If IBM were dealing with the price and reliability levels that NAS is, I'd rather buy from the American company."

J. A. SAVAGE

CORRECTIONS

The following details on Hewlett-Packard Co.'s equity stake in 3Com Corp. were omitted from the report of the two companies' alliance [CW, Feb. 27]:

The alliance was anchored by an initial HP purchase of up to 5% of 3Com's outstanding stock. According to 3Com Chairman William Krause, HP can purchase another 5% of 3Com stock. However, through "volume purchase of 3Com products, HP can earn the right to purchase up to 10%," he added.

As part of its performance-monitor line [CW, Feb. 13], Computer Associates International, Inc. offers these tools: CA-Jars, which monitors batch/on-line activity in IBM VSE, MVS and VM environments; CA-Jars/CICS, which monitors CICS in VSE and MVS environments; CA-FastDASD, which monitors direct-access storage device activity in VM and MVS environments; CA-ISS/Three, which monitors system work load capacity in MVS and other environments; CA-Mazdamon, which monitors VTAM, IBM Systems Network Architecture (SNA) and non-SNA activity in all MVS environments; and CA-Unipack/PMA, which monitors MVS or VSE and related subsystems.

Sequent Computer Systems, Inc. makes minisupercomputers, not supercomputers, as was earlier reported [CW, Jan. 30].

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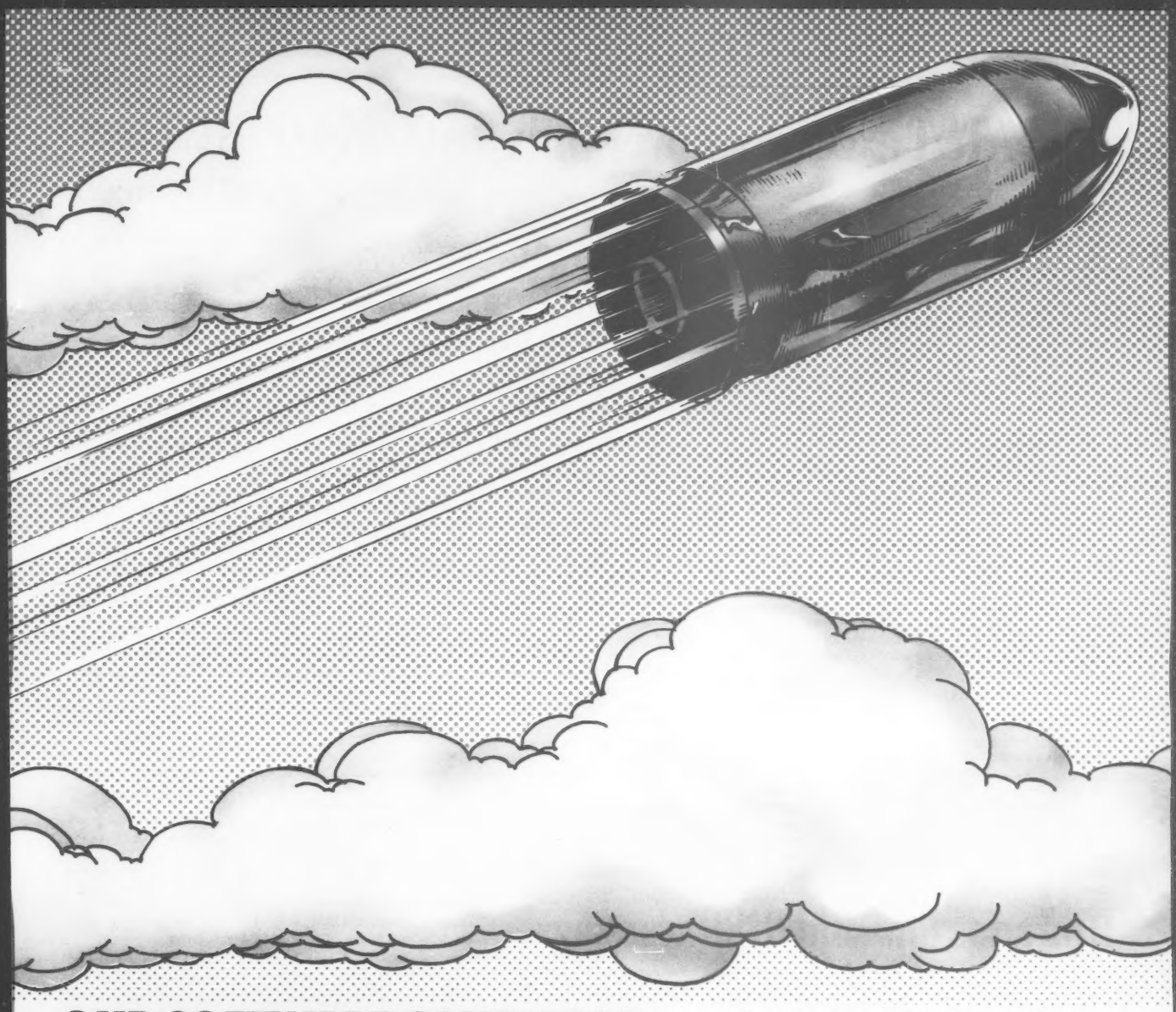

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IBM, AT&T execs spar over Unix

BY PATRICK WAURZYNIAK
CW STAFF

SAN FRANCISCO — Nearly a year after IBM and eight other firms formed the Open Software Foundation (OSF) to oppose AT&T's development of Unix, the two giants of the information industry are still slugging away at each other.

IBM, championed by Terry R. Lautenbach, senior vice-president and general manager of

AT&T's Kavner

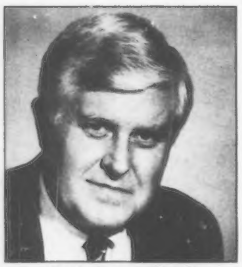
IBM United States, and AT&T, represented by Robert M. Kavner, president of AT&T's Data Systems group, jousted over the development of Unix in keynote speeches made on two successive days at Uniforum 1989, the International Conference of Unix Users, here last week.

Lautenbach contended that OSF's efforts, which are based on AIX, IBM's Unix version, were an "open, independent, vendor-neutral process." Kavner responded the next day by proclaiming, "After yesterday's presentation, I opened up the closet and took out my boxing gloves." Lautenbach noted that when an OSF decision is reached, everyone — sponsors, members and nonmembers — gets the information at the same time. "No favorites are played here," he said.

"In our view, AT&T asserted that System V, Release 4 was the only way to achieve compatibility for software vendors and customers. Well, it wasn't and it isn't," he said.

AT&T's recently formed unit, Unix Software Operation, represents "a promise that no one company will own [the rights to] Unix," Kavner said. He added that the X/Open Consortium Ltd. and other standards bodies such as the Institute of Electrical and Electronics Engineers, Inc. and the American National Standards Institute should set Unix standards specifications. He also noted that OSF's members "lack one goal — that of protecting end users' investments."

Kavner claimed that more astute users have known all along that the Unix standards conflict was "just an industry scrap, a squabble that will pass."



IBM's Lautenbach

Meanwhile, AT&T has opted to give early source code of Unix System V, Release 4 to the Unix International, Inc. group it spearheads.

AT&T outlined plans last week for an early access program for other Unix International members. Only those firms will receive the early source code for AT&T's Unix System V, Release 4 update, locking out more than 90 rivals from OSF.

Unix users interviewed at the show seemed uninvolved in the struggle between the OSF/Unix International factions. One San Francisco-area user said, "As long as a product has X Windows and TCP/IP, we just don't care."

Many users said they already have multiple versions of Unix in-house. In the words of one user, "There have always been two flavors of Unix: AT&T's and Berkeley's. I don't see how this will be any different."

AIX/370 finds support, but some question need

BY JEAN S. BOZMAN
CW STAFF

SAN FRANCISCO — IBM's delayed AIX/370 mainframe Unix is alive and well and living in California.

One copy resides on an IBM Enterprise System/3090 mainframe in IBM's Almaden Research Center in the San Jose area, and another is running on an ES/3090 with a Vector Facility in IBM's Palo Alto, Calif., Scientific Center. At Intel Corp. in Santa Clara, Calif., engineers used three IBM 3090s running AIX/370 to design the recently announced Intel I860 reduced instruction set computing chip (see story page 1), IBM executives disclosed at Uniforum 1989 here last week.

Across the country, eight IBM customers are using AIX/370 in an early-support program, IBM Vice-President and General Manager Terry Lautenbach said in his Uniforum keynote address. Six to 10 more customers will be added this spring, Lautenbach said.

"We will announce general availability in July, and we will continue to expand our installation base throughout the year," Lautenbach said. "I grant you it is taking us longer than expected to implement AIX on the 370 architecture."

IBM Vice-President Nicholas Donofrio, president of IBM's Advanced Workstation Division, said last week that AIX/370 will, at first, run under three variations of the VM operating system — VM/SP, VM/SP High Performance Option and VM/XA. Donofrio said that AIX/370 will eventually be made to run native on the IBM mainframe architecture. "It's not there yet," he said, "but of course we can [do that], and of course we will."

While IBM tries to get there, MIS executives at Uniforum indicated that is not the direction in which they are moving.

"I don't think mainframe Unix is important at all, not in our environment," said Mark A. Boster, assistant administrator of automated information services at the U.S. Department of Agriculture's Farmers Home Loan Administration.

William Teather, head of information management at British Airways, said he foresees a narrow market for mainframe Unix. "Mainframe Unix provides a reasonable development environment for a large number of people," Teather said. "But it seems that those days are rapidly passing. Most of the machines you'd want to develop applications on today would surround the mainframe."

For now, IBM executives said, AIX/370 will serve as a collection point for data coming to the host from Unix workstations scattered throughout a corporate enterprise.

DEC adds low-end RISC systems

BY JEAN S. BOZMAN
and JULIE PITTA
CW STAFF

SAN FRANCISCO — Digital Equipment Corp. announced a general-purpose computer last week that is based on the same Mips Computer Systems, Inc. RISC chip that powers the Decstation 3100.

The Decsystem 3100, announced here at Uniforum 1989, was designed to complement the company's Mips Computer Systems-based reduced instruction set computing Decstation 3100 and other RISC-based products that were announced Jan. 10 (see story page 41).

"This RISC machine is intended for a wider range of users," explained Domenic LaCava, vice-president of DEC's low-end systems group. Although based on a single-board CPU, the Decsystem contains a small computer systems interface bus that connects with one or more on-board 332M-byte disk drives.

The system is packaged as a stack of low-profile, modular boxes that can sit underneath an end user's desk or in a corner of a department's offices.

Three models of the Decsystem 3100, which runs at 14 million instructions per second (MIPS), are available for order now, with volume shipments planned for the second quarter.

The eight-user, 8M-byte model is priced at $22,000; the 16-user, 16M-byte model is priced at $37,700; and the high-end 32-user, 24M-byte system is priced at $55,600. Decsystem users may access remote users through Decserver products that are connected to DEC's Ethernet local-area networks, spokesmen said.

In the spotlight

Other hardware highlights of the Uniforum show included the following:

- Data General Corp., as expected, unveiled a 17-MIPS workstation based on Motorola, Inc.'s 88000 RISC chip. Called the Aviion system, DG said the unit is the first of an entire family of products based on the 88000 and on DG's DG/UX 4.1 Unix operating system.

DG/UX is compatible with AT&T Unix System V, Release 3, the University of California at Berkeley Unix 4.2 and the Posix government Unix standard. The workstation is priced at $7,450, and the system/server version is priced at $52,000.

- Motorola introduced a line of systems based on its version of RISC, the 88000 chip. The Delta Series 8000 includes two models based on Motorola's 20-MHz processor.

The Model 8864 is offered in a single-, dual- or four-processor configuration that is said to perform at 17 to 60 MIPS and is priced from $52,940 for a single-processor unit to $80,190 for a four-processor configuration.

A second system, the Model 8608, offers 8M to 32M bytes of main memory and 12 expansion slots. Motorola rated it at 17 MIPS and priced it at $27,835 for an entry-level configuration.

- Zenith Data Systems formally introduced a multiuser Unix computer that serves as a departmental node for as many as 90 end users.

Originally shown to the press last year [CW, Aug. 22, 1988], the Z-1000 contains 13 IBM Personal Computer AT-compatible boards in its cabinet.

The Intel Corp. 80386-based boards support applications running on 60 to 90 IBM-compatible personal computers. The Z-1000 comes with 64M bytes of main memory and with 64K bytes of cache memory on each of six processor cards.

Multiple copies of MS-DOS are hosted by the Z-1000's VPIX Unix operating system, product manager Ron Baldwin said. Each unit has four or more removable disk drives for security and backup. Five models are priced from $20,000 to $60,000.

The Z-1000 units are scheduled to begin shipping in volume in May.

DG starts *new family with 17-MIPS 88000-based workstation*

Uniforum heralds bevy of Unix tools

BY PATRICK WAURZYNIAK
CW STAFF

SAN FRANCISCO — Amid the efforts of the Open Software Foundation and Unix International, Inc. to drum up support for developing the next standard Unix operating system, several software vendors at Uniforum 1989 last week rolled out products for the Unix marketplace.

The Santa Cruz Operation (SCO), Locus Computing Corp., Digital Equipment Corp., Relational Technology, Inc. and Tandy Corp. banded together to introduce Open Desktop. An integrated Unix operating environment for Intel Corp. 80836-based workstations, the product includes a graphical user interface, an open SQL-based database and networking abilities to connect with other operating systems and hardware architectures.

Open Desktop integrates several technologies, including SCO's Unix System V/386 Release 3.2, developed using technologies from SCO, Microsoft Corp. and AT&T. It also uses the OSF/Motif graphical user interface based on DEC's XUI tool kit, offering the look and feel of Microsoft's OS/2 Presentation Manager.

In addition, Open Desktop offers distributed SQL relational database facilities provided by Ingres/386 from Relational Technology; the X.11 X Window System based on SCO XSight from SCO and Locus; DOS-Unix integration by Locus' Merge 386 and Locus' PC-Interface server, which allows access to DOS applications in Open Desktop's multitasking environment; and Transmission Control Protocol/Internet Protocol and Network File System for Ethernet, plus asynchronous network communications and distributed file system support.

Sun Microsystems, Inc. introduced three desktop productivity applications

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— Sunwrite, priced at $695, and Sunpaint and Sundraw, both priced at $495. The products, which can be used together or individually, are based on the specification of the Open Look graphical interface developed by Sun and AT&T, which is scheduled to be available by the end of this month. Sun also introduced Openwindows, an application environment including Open Look, X11/News and the new Xview tool kit.

Also at Uniforum, Unify Corp. announced it has teamed up with Oracle Corp. to offer Unify's Accell/SQL fourth-generation language as an interface to Oracle's relational database management system. Unify also introduced Accell/Intelligent Query (IQ), a reporting and data analysis tool for use with existing Unify database applications. Accell/IQ, available immediately, is priced between $750 and $45,000, depending on hardware configuration.

Intel

CONTINUED FROM PAGE 1

added that it could expand the PS/2 into computer-aided design applications.

At Uniforum 1989, IBM demonstrated an Intel 80386-based PS/2 Model 80 with the Wizard card running a numerics-intensive application. IBM claims this machine runs between 13 and 14 times faster than the Scalable Processor Architecture (Sparc)-based Sun-4/260 from Sun Microsystems, Inc. It is expected to be available later this year.

There is speculation that IBM may design a line of RISC workstations based on the I860. Sund said he expects IBM to take this direction. "I think its use will be a lot broader than a coprocessor; using it as a coprocessor compromises the chip's capabilities," he said. "We'll see the chip's real potential in a stand-alone architecture rather than in a stripped-down version for a 32-bit machine."

The new microprocessor also intensified the level of rhetoric in the RISC market. According to Claude Leglise, marketing director of Intel's microprocessor division, the I860 delivers 10 million floating-point operations per second (MFLOPS) in the double-precision Linpack benchmarks, compared with four MFLOPS for Mips Computer Systems, Inc.'s RISC processor and two MFLOPS for Sun's Sparc. A 33-MHz version will be available in production quantities by the third quarter of 1989, as will samples of a 40-MHz version.

Those benchmarks were characterized as misleading by Bill Keating, director of technical markets at Sun. "This is a coprocessor," Keating maintained. "In a host CPU configuration, the numbers start falling apart."

Unisys Corp., Ing. C. Olivetti & Co., Prime Computer, Inc. and AT&T will work with Intel to develop a multiprocessor version of AT&T's as-yet-unreleased Unix System V, Release 4 for the I860 and Intel's 386 and 80486 microprocessors. A beta-test version is set to be available in the fourth quarter of this year.

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DATA SET NAME	VSAM TRKS ALLOC	VSAM TRKS USED	IAM TRKS STD	IAM TRKS COMPR	% SAVINGS STD	% SAVINGS COMPR	TOTAL RECORDS	AVERAGE LARGEST	MAX LRECL
BIG.CLUSTER	37155	37155	27855	15600	25	58	4754670	233 502	580
CICS.FILE.MASTER. TABLE.CLUSTER	21000	19005	12720	9495	33	50	5068165	150 150	150
NAME.ADDRESS.FILE	9315	8985	6465	1875	28	79	428529	680 2090	2090

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NEWS SHORTS

Sytek finds home

Sytek, Inc., known primarily as a supplier of broadband technology, last week said it will be acquired by Hughes Aircraft Co., a unit of GM Hughes Electronics. The deal combines Sytek's terminal and local-area network capabilities with Hughes' wide-area networking technology. Sytek's parent company, General Instruments, had been dangling its 57% share of Sytek before potential buyers for more than a year. Sytek will be known after the merger as Hughes LAN Systems, a unit of Hughes Aircraft. Sytek President and CEO George Klaus will continue in those roles. Hughes LAN Systems will work with Hughes Aircraft and Hughes Network Systems. More details will be provided at a news conference scheduled for tomorrow.

Cheap help wanted

Low pay, outdated job descriptions, limited training and the federal government's bad image are factors that hinder federal MIS managers' efforts to recruit and retain MIS personnel, according to a U.S. General Accounting Office report. For example, the salary for an entry-level programmer in the federal government, $15,118, is as much as 33% lower than the salary for the same job in the commercial sector, the report said.

IBM 4381 withdrawal withdrawn

The IBM 4381 Models 23 and 24, killed last month with the introduction of new Enterprise Systems Architecture-capable 4381s, have been reborn. IBM announced continued availability last week of the two 4381s, which were scheduled to be pulled off the market in May. A company spokesman said the withdrawal was canceled because of outstanding bids involving the systems.

DCA redirects resources

Digital Communications Associates, Inc. (DCA) last week laid off almost 3% of its 1,500 work force and moved those positions into sales, customer service and development activities. DCA said the moves should strengthen its competitive position. The firm added that it is adopting cost-saving measures. Analysts have said they expect DCA, the subject of many buyout rumors, to be part of a major transaction this year.

MAI in new thrust

After months of warring in the boardrooms of two companies and the courtrooms of two states, potential hostile acquisitor MAI Basic Four, Inc. last week armed for a new fight for Prime Computer, Inc. MAI, headed by New York financier Bennett S. LeBow and financially backed by Drexel Burnham Lambert, Inc., announced it will wage a proxy contest to replace Prime's board of directors with its own slate at Prime's annual meeting, scheduled for May 12.

Look and feel wins backing

With Lotus Development Corp. and Ashton-Tate Corp. offering legal advice, a small software company last week won a look-and-feel lawsuit that may add credence to larger cases still pending. Manufacturers Technologies, Inc. (MTI) in West Springfield, Mass., sued two competitors and one remarketer for infringing the copyright on its computer-aided cost estimating system. According to the firm, the case in U.S. District Court in Bridgeport, Conn., was the first to be won solely on the basis of look and feel. The court withheld a ruling on damages but issued an injunction against the defendants.

Grid 386 is space bound

Taking product testing to the extreme, NASA will test Grid Systems Corp.'s Model 1530 portable computer on space shuttle missions, including the Discovery flight scheduled for this week. Astronauts will take the Grid PC high above Earth to test the Intel Corp. 80386-based system with tasks such as floppy-to-floppy and floppy-to-disk file transfers. They will also test a mouse and trackball without gravity.

Service firms try to outdo IBM

BY ROSEMARY HAMILTON
CW STAFF

Third-party maintenance providers are gearing up to outdo IBM in its recently announced strategy to provide more simplified and flexible service plans.

Sorbus, Inc. plans to introduce a revised contract structure in a few weeks that will cut the associated paperwork by 50% to 60%, according to Vice-President of Marketing Thomas Richards.

TRW, Inc. announced last week that it had just launched two service options on a trial basis. The plans extend the methods by which customers can set up payments and the number of service calls they anticipate.

The technical services division of Control Data Corp. is considering a plan to market a personal computer-based direct-access storage device monitor similar to the Service Director IBM announced along with its simplified strategy, according to James Paster, marketing manager of the company's IBM business segment.

The competitive moves will be welcomed by customers, who have been searching for ways to make maintenance administration easier, said Marnie Phillips, an analyst at The Ledgeway Group in Lexington, Mass.

"As far as I can see, IBM is making it easier, but the third parties are keeping close. It's a chess game," said George Tabback, corporate director of information systems at Ingersoll-Rand Co. in Woodcliff Lake, N.J.

Ingersoll-Rand currently uses both CDC and IBM as service providers, and Tabback said both are "pushing each other to do a good job and make [mine] an easier job."

The first move

In January, IBM launched Serviceplan, which restructured its maintenance offerings under one program. The company did away with multiple contracts to simplify customers' work loads and added new options such as estimated billing to allow customers more flexibility in putting together service packages.

Third-party providers contacted last week said they are not responding directly to IBM's announcement. Instead, they claimed, they have all been working toward more flexible and understandable maintenance programs for some time. In fact, some third-party providers such as the computer service division of General Electric Co. said they have been offering one-page contracts for years.

At Sorbus, a project was launched last year to determine how the company could provide a more flexible service package, Richards said. One outgrowth of this was a simplified contract, which is now being finalized.

More to come

Richards said Sorbus will continue to evaluate what other options are worth adding to its line-up. The firm tends to approach options on an individual-customer basis rather than make them standard offerings as IBM did with Serviceplan, he said.

Estimated billing, one of the new pieces of Serviceplan, would allow a customer to reach an estimated set price up front for a year's worth of service. Sorbus offers estimated billing if a customer requests it, but it is not a standard offering, Richards said.

Thomas Ewing, vice-president of operations at TRW, said the simplified approach is one "we've all been after." TRW has had a strategy similar to IBM's in the works for some time, he said.

"We've got some umbrella programs [like Serviceplan], but our approach is to have the customer tell us what they need and we'll find it for you," Ewing said.

American explains its Sabre, Datas II link

BY ALAN J. RYAN
CW STAFF

NEW YORK — With American Airlines seeming to fare well in the computer reservation systems (CRS) wars, attendees at a conference here last week questioned the wisdom of the airline's decision to combine its profitable Sabre system with Delta Air Lines' Datas II CRS, which has a much smaller market share than Sabre.

According to Russell Harrison, president and chief operating officer of AMR Information Services, a subsidiary of AMR Corp. and sister company of American Airlines, American's decision was spurred by many factors.

Harrison cited the increased regulatory attention Sabre has been getting from the federal government because it is the only major independent CRS remaining; the long-standing argument that CRSs should not be a competitive tool; the $650 million that American will receive from Delta and potential profits by selling the system to other airlines; and the higher share of bookings the combined CRS would likely bring about.

American's Harrison

Speaking at a meeting of the Financial Executives Institute, Harrison noted that with the proposed combined system, American and Delta would each own 50% of the system, and each could sell half of its 50% of the system to other airlines for $20 million per percentage point. "It is entirely possible that American might go down to as low as 10% ownership over time," he added.

American spokesman John Hotard said the airline is still awaiting word from the U.S. Department of Justice. "The Department of Justice does not have to approve it — it could say no." A decision is expected within 90 days.

During his talk, Harrison outlined AMR Corp.'s technological efforts, which he said he believes will rival the Sabre system in its innovation. He said that the time has come for the airline to once again try to move ahead of its competitors.

During the next five years, Harrison predicted, American will move into these technologies:

- Image processing, to eliminate paperwork and speed up processes for its Advantage frequent-flyer program.
- Knowledge-based systems, to help make decisions on whether or not to risk overbooking a flight, basing those decisions on historical data.
- Expert systems, to assist the airline when difficult situations arise, such as where to reroute planes if a snowstorm closes a major airport.

The latest and riskiest investment the airline has made, Harrison said, is its $170 million investment to bring about a totally integrated office for the AMR employees. The platform was designed to eliminate paper and "enable people to operate smarter and faster. It was designed to change the way we operate," Harrison added.

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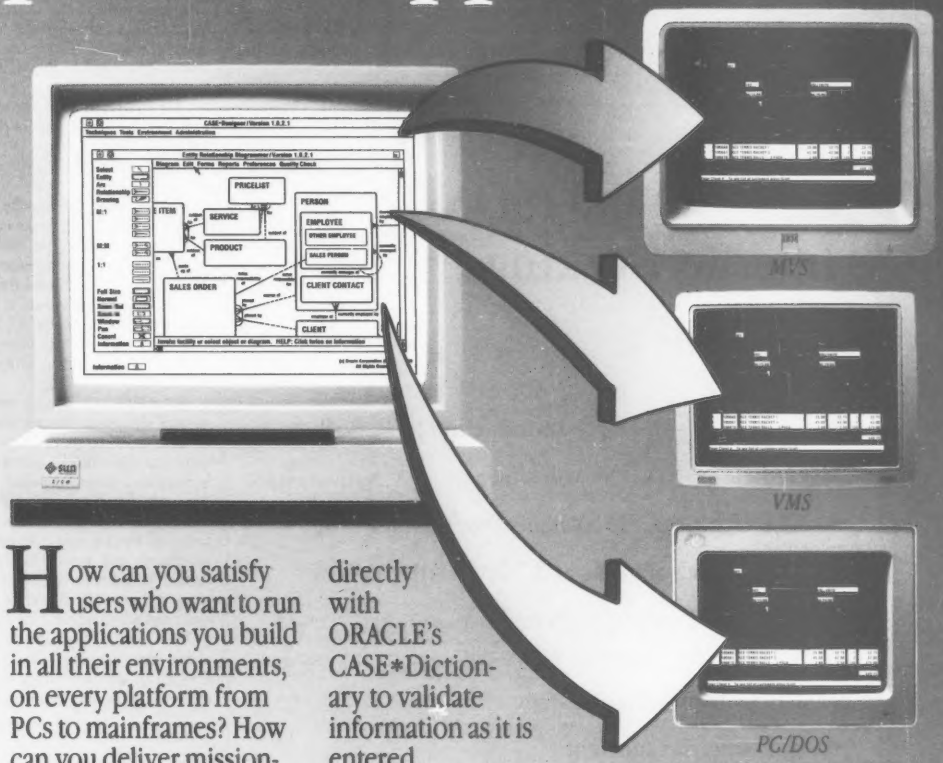

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	La Jolla	Apr 13*a*
	Los Angeles	Mar 14*fm* Apr 20*af* Apr 25*g*
	Ontario	Mar 21*fm*
	Redwood City	Apr 27*g*
	Sacramento	Mar 21*f*
	San Diego	Mar 16*cf*
	San Francisco	Mar 29*cf* Apr 25*av*
	San Jose	Mar 9*fv* Apr 12*ar*
	Santa Clara	Mar 9*fv*
	Universal City	Apr 6*cfm*
CO	Denver	Mar 30*g*
	Englewood	Mar 7*afp* Apr 18*ac*
CT	Farmington	Mar 7*f*
	Stamford	Mar 21*fm*
DC	Washington	Mar 16*g* Apr 13*g*
FL	Ft. Lauderdale	Mar 8*t*
	Tampa	Mar 22*fv*
GA	Atlanta	Mar 23*v* Apr 26*m*
	Savannah	Apr 27*f*
HI	Honolulu	Mar 14*fp*
IA	Des Moines	Apr 20*t*
ID	Boise	Apr 13*fr*
IL	Chicago	Mar 21*fv* Apr 18*afp*
	Rockford	Apr 11
	Springfield	Apr 20*r*
IN	Indianapolis	Mar 22*fm* Apr 25*r*
KY	Lexington	Mar 21*c*
	Louisville	Apr 4*f*
LA	Baton Rouge	Apr 21*c*
	New Orleans	Mar 31*am*
MA	Boston	Apr 20*fm*
	Burlington	Mar 15*af*
MD	Baltimore	Apr 12*cf*
	Bethesda	Mar 9*ga**
	Columbia	Mar 15*p*
ME	Augusta	Apr 18*t*
	Portland	Mar 2*f*
MI	Dearborn	Apr 4*f*
	Grand Rapids	Mar 8*fm*
	Troy	Mar 7*fm*
MN	Minneapolis	Mar 14*fp* Apr 11*mv*
MO	St. Louis	Mar 9*fm* Apr 13*v*
MS	Jackson	Apr 18*t*
NC	Charlotte	Mar 22*c*
	RTP	Mar 7*r*
	Raleigh	Apr 19*m*
NE	Omaha	Apr 6*f*
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NJ	Iselin	Mar 30*fm*
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FCC, users clash over price caps

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Federal Communications Commission Chairman Dennis R. Patrick defended his complex package of price caps regulatory reforms at two congressional hearings last week, asserting that price controls for AT&T would save business users about $200 million over four years.

Patrick said an FCC computer model estimated that consumers would save a total of $900 million under the price caps scheme compared with the current system of regulating profits. He said that $700 million in savings would go to residential users and $200 million to business customers.

However, two user groups reached the opposite conclusion. The Consumer Federation of America and the International Communications Association (ICA) — the latter a business user group — said in a joint statement that Patrick's price caps plan for AT&T would shortchange ratepayers $1.5 billion per year.

Patrick's latest proposal is "so clearly antiuser, as compared to current rate-of-return rules, that we believe the commission must go back to the drawing board," the groups concluded. The FCC is expected to vote on price caps at a March 16 meeting.

The ICA has repeatedly criticized the price caps formula for underestimating the carrier's productivity gains and for locking in current prices that the ICA contends are inflated [CW, Aug. 1, 1988].

The price caps plan would essentially substitute a set of price controls for the current system of regulating AT&T's profits. AT&T's aggregate price ceiling would be adjusted annually for inflation, minus a 3% productivity factor to reflect the company's productivity improvements.

The ICA analysis said that if the FCC simply chooses a 4% productivity factor for AT&T, the price caps plan will improve dramatically — saving ratepayers $1.6 billion per year.

In an effort to appease members of Congress, Patrick made several refinements to his price caps plan to protect residential and small-business ratepayers. But members of the House Subcommittee on Telecommunications and Finance said even more safeguards are needed for residential consumers, particularly to save the AT&T discounts for night and weekend calls.

"We seem to hear the sound of one hand clapping," said Rep. Edward J. Markey (D-Mass.), chairman of the subcommittee.

Key concerns

Rep. Edward J. Markey said the House panel has several concerns about price caps. Addressing the FCC's Dennis R. Patrick, Markey said he wants answers to the following:

- Why lock in existing rates that the FCC says are "too high in an economic sense" because of years of rate padding and then see them increase each of the next four years?
- Why not wait for the Bureau of Labor Statistics, the government's expert agency on productivity, to calculate a telecommunications productivity measure instead of relying on possibly outdated studies?
- Why won't the FCC commit to finishing all outstanding tariff investigations before beginning a new regulatory regime?
- Why do most of the people purported to benefit from this plan oppose it?

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Decnet out to capture X.25 territory

BY ELISABETH HORWITT
CW STAFF

MAYNARD, Mass. — The latest round of the battle between IBM and Digital Equipment Corp. for control of the corporate network is being fought on the X.25 front, with DEC expected this week to finally provide Decnet support for X.25 devices, company spokesmen confirmed.

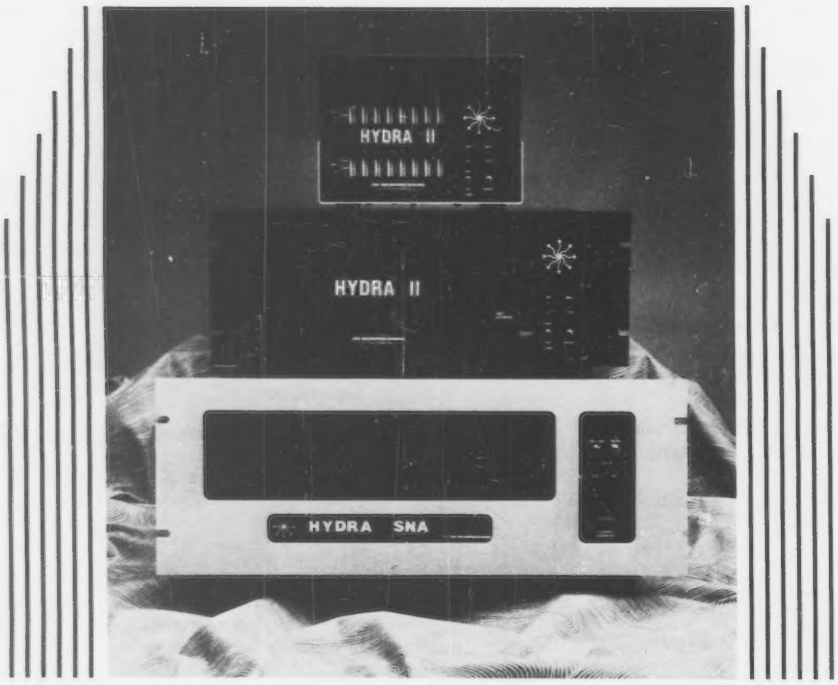
DEC's X25portal 2000, which is to be "a key component to our enterprise networking strategy," according to Lee Sudan, DEC's director of networking, is said to allow any host with a CCITT X.25 interface to communicate over either a Decnet or X.25 network. The software package converts Decserver 2000s — Microvax II-based network servers that DEC announced last August — into an enterprisewide backbone that can support both DEC and non-DEC systems, Sudan said.

The product is DEC's return volley at IBM's X.25 Interconnect (XI), which provides X.25 support over IBM Systems Network Architecture (SNA), said Steven Wendler, a program director at Gartner Group, Inc. in Stamford, Conn. XI, which IBM formally introduced more than a year ago, "caught DEC with its pants down," Wendler said.

XI was only the first in a series of IBM announcements to "position SNA as a total enterprise backbone for data, with everyone else's network a legbone hanging off it," Wendler said. Around the same time, IBM introduced the 3745, its first communications processor with enough power to handle XI networks, given that the software "is a resource hog," Wendler said. Last September, IBM announced full support of Open Systems Interconnect traffic over SNA backbones, and, as a crowning blow, provided Decnet support over SNA.

DEC's X25portal 2000 announcement is one of a series of releases with which the vendor hopes to position Decnet as a company's central network rather than as an SNA appendage. The package will be able to work in concert with X.25 Router 2000, another Decserver package that allows Decnet devices to communicate with other systems over an X.25 packet-switched network, Sudan said. DEC expects to upgrade the servers shortly so that they can support full 1.5M bit/sec. T1 speeds, he added.

DEC is also expected to announce a more powerful, VAXBI-based version of its DSV 11 controller next week. The current controller links Microvaxes to Decnet, SNA and X.25 environments.



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Apollo, DEC to build on Network Control System

BY ELISABETH HORWITT
CW STAFF

SAN FRANCISCO — Joining forces against the common enemy, Digital Equipment Corp. and Apollo Computer, Inc. have agreed to develop distributed application systems based on the remote procedure-call component of Apollo's Network Control System.

Under the terms of the agreement, announced here at last week's Uniforum 1989, the companies will work together to add functionality to Apollo's remote procedure calls. They will then implement the result in their own distributed application systems, according to Gail Daniels, DEC's director of local-area network marketing.

Remote procedure calls are a key element of a distributed application architecture because they allow different parts of an application to be assigned on a dynamic basis to whatever processor is best suited to handle the work, industry sources said. Users want this single-system image so that they can run an application without worrying about what system or systems it resides on, said Anthony Friscia, president of Advanced Manufacturing Research, Inc. in Cambridge, Mass.

Implementing Apollo's offering, commonly considered the most functional on the market, should help DEC keep ahead of rivals such as Sun Microsystems, Inc. and IBM in terms of providing a distributed application platform, but DEC's endorsement is unlikely to help Apollo overtake Sun's lead, Friscia said.

DEC and Apollo also plan to submit the enhanced specifications to standards bodies such as the Open Software Foundation and possibly the International Standards Organization (ISO), Daniels said.

DEC and Apollo's joint work will have a better chance of being seriously considered by the ISO because, only last week, that organization decided not to adopt a remote procedure-call document that had been proposed as an Open Systems Interconnect standard. It will take at least two years for another such specification to get through the formal ISO standards approval process, according to Jim Quigley, a Hewlett-Packard Co. engineer who participated in the ISO subcommittee.

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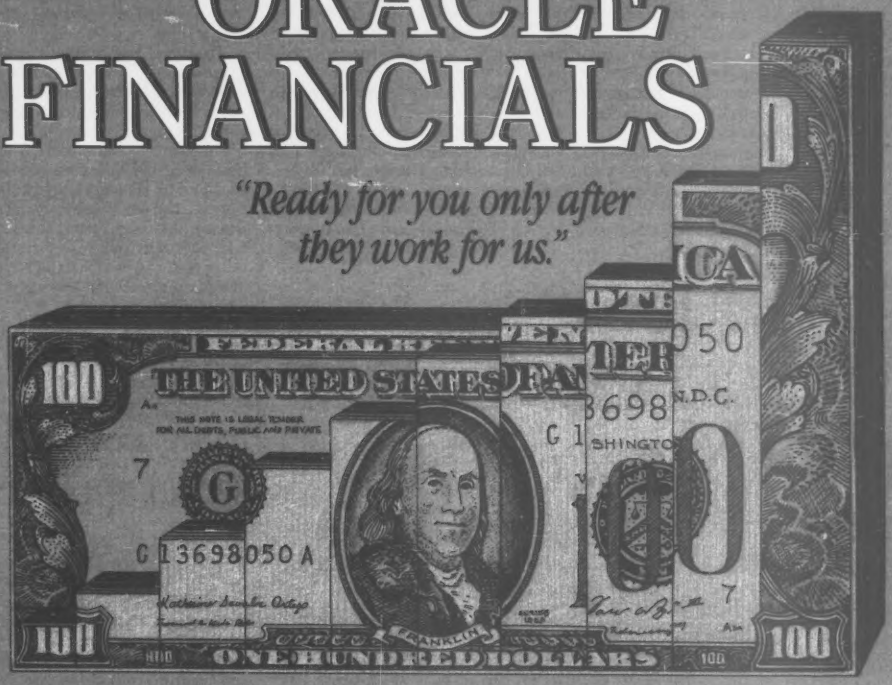

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COMPUTERWORLD

AT&T extends users' reach with Starlan TCP/IP rollouts

BY PATRICIA KEEFE
CW STAFF

BOSTON — Unix ringmaster AT&T took a belated leap onto the Transmission Control Protocol/Internet Protocol bandwagon last week, rolling out two TCP/IP products for users of its Starlan networks.

AT&T also expanded its electronic mail support to three competing networks, unwrapped a version of Informix Software, Inc.'s Informix for Starlan and repackaged and renamed its Starlan server software, now called Stargroup.

The goal behind these announcements — summarized below — is to enable AT&T users to build distributed computing systems that will reach well beyond the confines of Starlan work groups:

- A program was announced that will enable MS-DOS users on Starlan networks to access an estimated 140 host systems that support TCP/IP.
- TCP Access Program (TAP) reportedly will allow users to retain access to client-server applications when switching between the TCP/IP and Open Systems Interconnect worlds. The gateway product resides on the server, supporting dual protocol stacks and the ability to bridge to another work group via CCITT X.25.
- Informix unveiled Informix-Net, Stargroup-compatible software that allows users to share and manipulate data across networks and multiple machines. This will minimize network traffic and improve efficiency.
- AT&T's PMX/Starmail now runs on network software from 3Com Corp., IBM and 10Net Communications, Inc.
- A development agreement was formulated to produce a single Novell, Inc. Netware-compatible driver that supports AT&T's entire Starlan family.

Users reportedly can run TAP on either AT&T's Unix-based 3B2 minicomputers or its 6386 Work Group System personal computers, gaining access to host features and resources located on Stargroup and TCP/IP networks — regardless of the operating systems of the host or client.

The new Netware driver provides an alternative for Netware customers who want to take advantage of AT&T's Premises Distribution System network cabling, AT&T said.

Despite the driver support, AT&T was not among the midrange vendors that lined up to support Novell's Portable Netware last week (see story page 141). Instead, the company has licensed OS/2 LAN Manager from Novell rival Microsoft Corp. and will incorporate it into Stargroup, its existing Unix server product.

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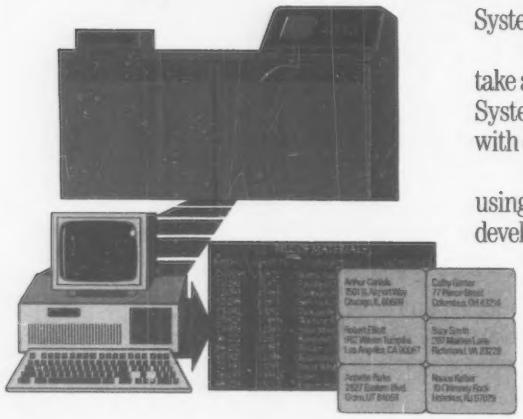

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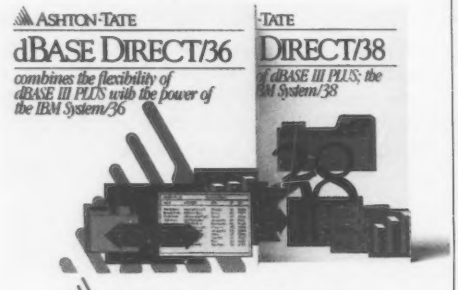

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3Com, HP ally using TCP/IP server approach

BY PATRICIA KEEFE
CW STAFF

SAN FRANCISCO — Barely a week after announcing plans to integrate their product lines, partners 3Com Corp. and Hewlett-Packard Co. showcased Transmission Control Protocol/Internet Protocol (TCP/IP) as their approach to OS/2 and Unix server interoperability.

Two weeks ago, the firms announced six areas of product development focused heavily on standards such as TCP/IP, CCITT's X.400 and the Open Systems Interconnect model. The resulting products were scheduled to begin shipping by the second quarter [CW, Feb. 27].

HP and 3Com said they will jointly port and test a TCP/IP protocol suite for DOS and OS/2, which will then be integrated into their respective local-area network management products.

A demonstration at Uniforum 1989 last week used TCP/IP to link 3Com's OS/2 LAN Manager server and HP's LAN Manager for Unix (LM/X) server and featured both MS-DOS and OS/2 workstations communicating with LM/X.

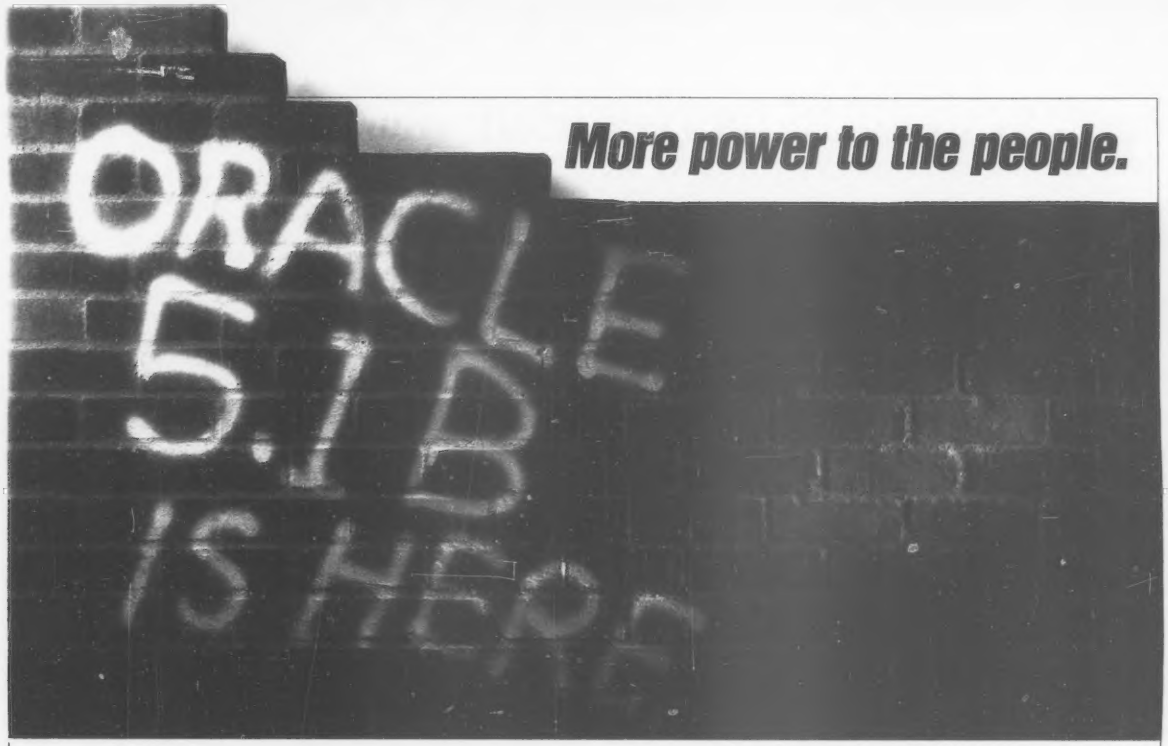
Server choice

This capability — which essentially gives users a choice of using OS/2 boxes or minicomputers as servers — is slated for fourth-quarter availability. 3Com will initially offer TCP/IP as a 3+Open option.

TCP/IP is used to provide interoperability between multivendor systems and is popular in the Unix and Ethernet camps.

"This demonstration illustrates one of the first tangible benefits that our customers can expect from the strategic alliance," said Eric Benhamou, general manager of 3Com's software products division. 3Com has said its first priority will be to link LM/X and 3+Open, which is based on OS/2 LAN Manager.

The most commonly used TCP/IP applications — File Transfer Protocol and Telnet — will be included in a consistent platform to help standardize the development of applications designed to run over DOS, OS/2 and Unix systems.



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Emery systems fit merger plan

BY ALAN J. RYAN
CW STAFF

MENLO PARK, Calif. — If Consolidated Freightways, Inc.'s $230 million tender offer for Emery Air Freight Corp. is successful, Consolidated will gain not only Emery's air-freight business but also its sophisticated package-tracking system.

According to Consolidated spokesman Jim Allen, his company has been competing daily with Emery's Emcon system, used for package tracking and billing. Robert R. Bohannon, vice-president of information systems at Emery in Wilton, Conn., said it is too soon to tell what changes might be made to Emery's systems and staff if the acquisition takes place.

Through the acquisition, Consolidated would also gain Purolator Courier Corp., a wholly owned subsidiary of Emery that specializes in overnight delivery of small packages and letters. In 1987, Emery paid approximately $313 million, or $40 per share, for Purolator. Allen said the reason for Consolidated's $230 million offer for the company was that Emery had lost money for the last two years, reportedly in the range of $100 million.

Not perfect

With or without the Emcon system, the pairing of Emery and Consolidated — which had $2.7 billion in sales and $113.2 million in earnings last year — is not necessarily going to be a popular move with Wall Street, according to analyst Paul R. Schlesinger at Donaldson, Lufkin & Jenrette, Inc. "I don't think this merger is made in heaven," he said.

Schlesinger said that while Emcon was state-of-the-art technology when it was first implemented, it had been allowed to stagnate for 15 years. "Then the people at Emery discovered they had a lot of remedial work to do, set about doing that, and I believe they have made a lot of strides," he said.

Allen said the Emery acquisition is part of its planned expansion of CF Air Freight, Consolidated's air freight company.

"We had a five-year expansion plan for CF Air Freight that was going to cost us about $250 million. What this does, for $230 million, is essentially complete our expansion plan immediately," Allen said. Consolidated's other primary businesses include shipping heavy freight by truck, rail and ocean vessels.

Over the last 10 years, Consolidated has pumped $225 million into the development of its systems technology, Allen said, claiming that Consolidated boasts the second largest computer system in the state of Oregon, where the MIS operation is based.

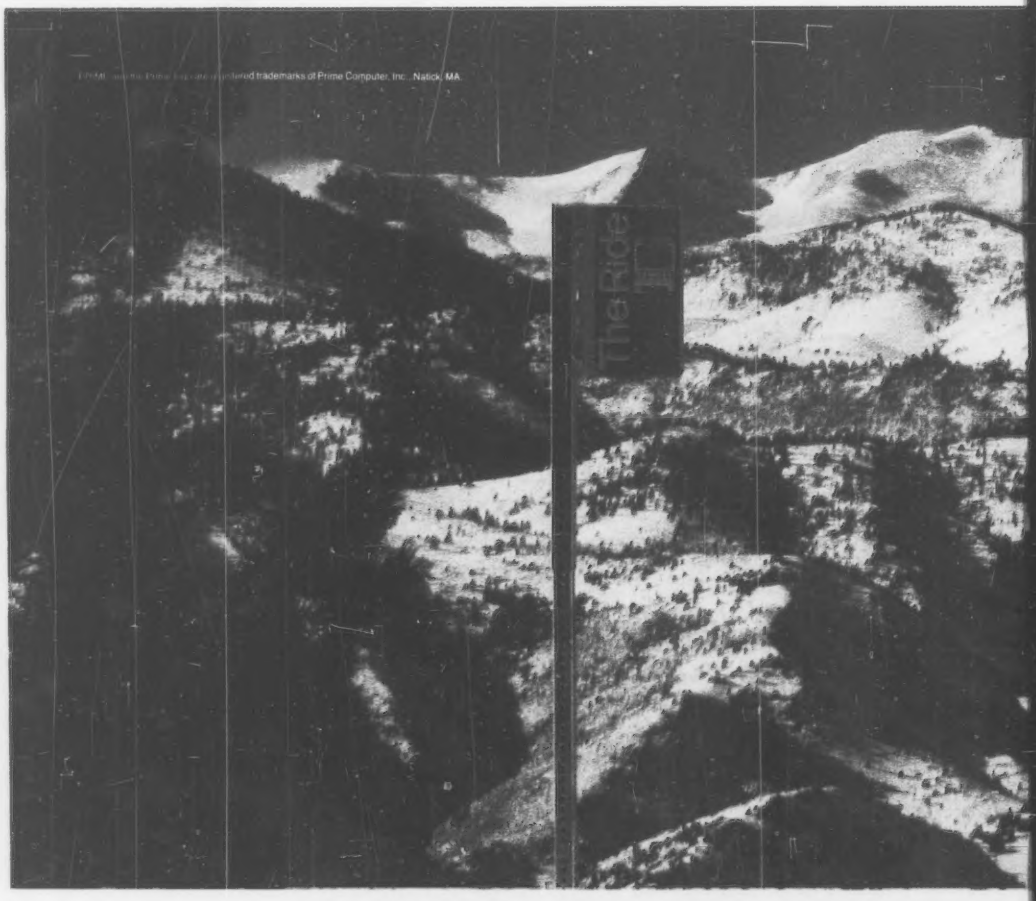
Allen said if the acquisition is successful, the name of the new company would be Emery Worldwide, a CF Company. He estimated the deal would not be completed for eight to 10 weeks.

Emery has offices in approximately 230 U.S. cities and 98 cities worldwide in 38 countries outside of the U.S. Consolidated has 18 international offices in 12 countries and another 1,044 freight facilities in North America.

How it gets there overnight

When Emery Air Freight acquired Purolator Courier in 1987, the overnight letter carrier was in the process of increasing its system and "was somewhat behind the competition in some functionality and features on their system," said Robert R. Bohannon, Emery's vice-president of information systems.

But as of this month, Purolator's lackluster systems have been replaced, and the business has moved onto Emery's Emcon sys-



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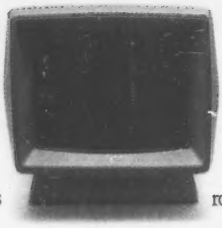

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The system can also schedule routine maintenance for the RTD's flee

tem. With the addition of Purolator, Emcon's daily shipment tracking will grow from 70,000 packages to approximately 200,000, Bohannon said.

The Emcon system consists of 3,000 worldwide terminals linked to IBM mainframes; it allows for the entry of all airway bill information for every shipment that Emery handles on a daily basis, Bohannon said. Using bar codes and a handheld bar code reader wand, each package is tracked from the point of pickup to the local Emery office, then to the Emery office nearest the destination point. It is finally tracked to the destination point itself, where couriers can type in the name of the person who received the package. The wand is polled by Emery's IBM 3090 mainframe computers when it is placed in a cradle by the courier.

Emcom aiso offers a messaging capability that allows administrative messages to be sent from any Emery office to any other Emery office worldwide, a charge rate schedule for packages and a customer service function that allows specific customer information to be called from a master file, including a particular company's pickup dock location and hours of operation.

ALAN J. RYAN

FCC rules AT&T must post rates

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — AT&T must disclose its prices for the Federal Telecommunications System 2000 (FTS-2000) in a public tariff after the Federal Communications Commission (FCC) last week rejected the company's unprecedented request to keep the rates secret.

AT&T's assertion that disclosure of the rates could cause competitive harm when the FTS-2000 contract is rebid in four years was not sufficient to justify the secrecy request, the FCC said, because published rates are the essence of a tariff.

> AT&T's assertion that disclosure of the rates could cause competitive harm was not sufficient to justify the secrecy request.

AT&T, which won a contract for 60% of the federal government's intercity network last year, will compete in four years with the other contractor, U.S. Sprint Communications Co., for a greater share of the network.

Exposed

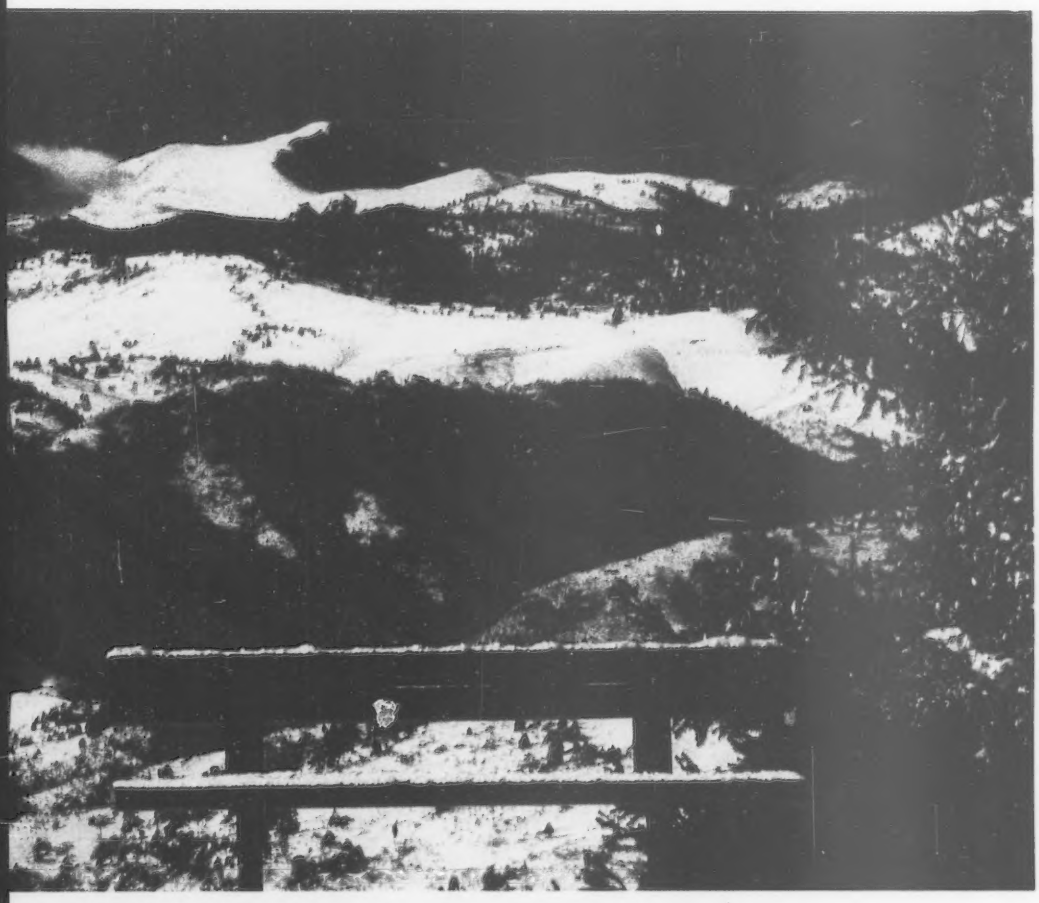
Under the Communications Act of 1934 and FCC rules, AT&T must file tariffs that expose its rates. AT&T filed FTS-2000 rates with the FCC under a new Tariff 16, designed for government contracts, but sought a waiver from the disclosure rules to keep U.S. Sprint from learning its prices [CW, Feb. 13].

The FCC agreed with MCI Communications Corp.'s complaint that secret rates would set a bad precedent.

"AT&T could quite plausibly claim that disclosure of any AT&T tariff rate for any service could cause AT&T competitive harm," said the ruling by Gerald Brock, chief of the FCC's Common Carrier Bureau.

Brock suggested that AT&T file its FTS-2000 tariff again, this time with prices on the public record.

Although the FCC rejected the secrecy request, it did approve AT&T's introduction of Tariff 16 for "competitively bid governmental services." Last week, the FCC upheld AT&T's first Tariff 16 offering, a long-distance network for military bases in Hawaii.



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EDITORIAL

Expanded access

THE HALLMARK OF a skillfully designed information system is ease of user access to data, with the data itself being in a usable and complete form.

The same is true of news journals. A publication may contain the very best and most useful information available, but if the reader can't get to it easily, that information may as well not exist.

With this in mind, the editors of *Computerworld* have always held that access to the information within our pages is at least as important as the information itself. That was why we redesigned the paper from top to bottom two years ago, and we have continually refined that award-winning design ever since.

This week we are presenting some more changes, each designed to make the paper an even more useful tool for our 130,000 subscribers.

The biggest change is on the page 2 table of contents. There, in addition to the weekly index of stories, we proudly present Executive Briefing. Readers perusing this new feature can obtain an analysis and overview of the week's major pieces of special interest to information managers. Executive Briefing was created in direct response to your concerns that, by virtue of our size, it may be difficult at times to locate information pertinent to your specific needs.

Second, we have redesigned the Management section, renaming it Manager's Journal. Our intent is to sharpen the focus of the section on the most salient issues and challenges facing IS managers. Our new weekly Executive Track column will keep you abreast of the movements of your peers within the IS community, a sort of *Who's Who in IS.*

Finally, the Microcomputing section is now called PCs & Workstations; henceforth, it will feature both news and applications from the rapidly developing low-end workstation front. (The Systems & Software section will continue to cover the high-end, multiuser workstation issues.)

This section will boast an upsurge in coverage of PC-related applications in general because readers are increasingly interested in seeing how their peers across the country are managing and controlling the end-user explosion.

Taken in sum, the changes were made with the dynamic — and at times befuddling — IS environment in mind. Our 55-member editorial staff is, far and away, the largest and most experienced staff of any IS journal. And being the only such publication that readers can't get free, we know we have to work that much harder for your loyalty.

We hope our weekly efforts are that much more accessible to you now. Drop a line to let us know what you think, or dial up the modem of our new bulletin board and leave a message for the editor at 508-626-0165.

LETTERS TO THE EDITOR

Changing the focus on virus threat

I was shocked to see the following statement in John McAfee's computer virus article [CW, Feb. 13]: "The single most effective policy that can be implemented in a corporate environment is to prohibit the use of public-domain and shareware software programs."

I challenge McAfee to show me a single documentable case of a virus originating in or being spread by a shareware or public-domain program supplied by a reputable source such as Compuserve or Nelson Ford's Public Software Library. These organizations pay particular attention to checking the software they distribute for suspicious code.

How about running an article about the bug-free, powerful shareware products that have come on the market in the last year? I'd be happy to write it!

Janet Ruhl
Ruhl Computer Services
Windsor, Conn.

"Managing the virus threat" recommends corporations establish a blanket policy forbidding the use of public-domain and shareware software products, but I find that this does not differentiate between the two types of software, nor does it address the benefits available from the shareware market.

Public-domain software is typically acquired without guarantees or any knowledge of the author. Shareware, on the other hand, usually has a single entrepreneur or a small company responsible for support and providing registered copies. The close link between programmer and customer and the financial incentive greatly reduces the threat of wrong intent.

Shareware lets users ensure the product meets their needs before buying, has improved productivity and has sharpened my technical skills. The level of sophistication offered by many shareware products has far outpaced the average user I support.

We need not sacrifice such benefits without question because of the fear created by the virus threat. To do so would miss the real source of the problem and would declare viruses the winner.

The author is right on the money when he states that "the indiscriminate duplication of public-domain programs makes auditing and tracking them very difficult." But to put all the sources of shareware products in that same category is laying a bum rap on a small segment of the software market that really deserves better.

Fred Crowden
EDP Audit Supervisor
Public Service Co.
of New Mexico
Albuquerque, N.M.

John McAfee's computer virus article was by far the most informative article on viruses that I've read to date. It was a pleasure to have the opportunity to read his views firsthand, instead of the incomplete and second-hand accounts from numerous press reports of his activities. It's clear that Mr. McAfee is the leading figure in the virus wars, and I would like to thank you for adding his insights to the general body of knowledge on the subject.

Mark Goretsky
Computer consultant
Sunnyvale, Calif.

RISC no risk

"It's a do-or-don't year for HP" [CW, Jan. 9] refers to problems that existed at the time of the introduction of the HP 3000 Series 900 machines.

We are a rapidly growing Hewlett-Packard Co. shop (Series 48, 70 and 950) that is about 50% finished migrating from the Series 70 to the Series 950. More than 95% of what we have moved to the MPE-XL machine is in native mode so we can reap the benefits of the reduced instruction set computing (RISC) architecture — and the benefits are there.

Concerning migration — it isn't a problem and it isn't difficult. We have had a few hiccups (which are to be expected), but HP has been right there to help us when we needed it.

Regarding performance, we have some applications that are showing a 70% to 80% reduction in processing time. The performance improvements are very application-dependent, but the machine meets or exceeds every specification that HP has released on it.

The bottom line is that we are very pleased with our HP 3000 Series 950. The machine works, it's very fast, and it's easy to use. Going with RISC is not a risk with the Series 950!

Foye M. Troute
Director, MIS
Tire Kingdom
Lake Park, Fla.

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701.*

When your superuser leaves your department in a lurch

ROBERT D. HARGROVE

You probably have some in your department. You definitely have some in your organization. They are the end users who adapt a little more quickly than their peers to the new technology or systems that you provide.

Many of these users have emerged as experts within their departments and act as consultants to fellow users. Whether working on a mainframe application or armed with their PCs, they have developed into "superusers."

Superusers fill an obvious need, performing a function often unwanted by both the MIS people who installed the new system or the more conservative end users who were comfortable with the old way of doing things.

Relying on the superuser offers many advantages over the traditional MIS-user relationship. For example, the setup offers flexibility and speed. Users can usually get immediate attention for their small jobs instead of being told they'll be added to an ever-growing backlog.

Also, there are few bureaucratic procedures to bog down a project. No forms for direct access storage devices, no change control, no nonsense.

Superusers will try new things and are far less burdened by the "This Is The Way We Have Always Done It Syndrome." Many are indeed true innovators, willing to combine their newly acquired technical expertise with their knowledge of how the business functions to produce some remarkable and useful results.

Acting as the liaison to MIS, the superuser may become the center of an entire new department designed around him in recognition of his value. For instance, a superuser who spearheaded the implementation and acceptance of a mainframe package may be tapped to start up a client-support department.

This arrangement works well until the time — and it happens to all organizations eventually — when the superuser leaves.

It is then frequently discovered, in an atmosphere of panic, that the superuser's duties were neither institutionalized nor even written down. The special reports he ran for the chief executive officer are nowhere to be found. "Hmm. I wonder what subdirectory they were on and what they were called?" is a likely question to be asked.

There is an eerie sense that this problem has been faced before, as indeed it was back when early programmers ran payrolls from card decks secreted away in their desk drawers, and accounting closings depended on the health and presence of a Ralph or Ramona.

The lesson has been forgotten: Written procedures — documentation, quality assurance, change control — make the department, not any one individual, no matter how super.

Continued on page 21

Hargrove is security and contingency planner at the University of Texas Health Science Center at Houston.

The paths to software quality

Which of three volatile management theories will dominate the industry?

ROBERT L. GLASS

When you strip away the trappings from who is responsible for software quality, it comes down to a new variation on an old theme: management theory.

There are basically three theories worth talking about. Theory X speaks of management control. It says that people inherently dislike work, they have to be coerced into doing it, and they like to be told what to do.

Theory Y speaks of technologist control. It says people do not inherently dislike work, they can exercise self-direction and learn to work responsibly, and their commitment to objectives depends on appropriate rewards.

Theory Z speaks of shared control. It says that people work best toward goals they have helped establish; that once people buy into these goals, you can trust them to perform; and if the people share a common set of values, they can develop workable project goals.

There is a chronology of software development that corresponds with these theories. In the early days, when software was an art and a craft, Theory Y was in force. Programmers were assumed to be competent and responsible, and management pretty much left the achievement of quality up to them.

However, there was always the nagging feeling both from a management and a research point of view that we could do a better job of producing software. Not just better, but BETTER.

The advocates for change began hypothesizing on the automation of the software professional's art in the same way that other skilled crafts had evolved into assembly-line processes.

JOHN DYKES

Acting before the reality of automation had really occurred, management of software development gradually converted to the Theory X approach, the one most appropriate for managing the de-skilled people that software developers had not yet come to be. Discipline became the keyword for software management, standards became the means of defining quality, and quality assurance became the organizational approach for achieving it.

Then the facade of automatic programming slowly crumbled. David Parnas, a professor at Queens University in Ontario, fired the first shot in his "Parnas Papers" on the Strategic Defense Initiative. "I believe that the claims that have been made for our automatic programming systems are greatly exaggerated," he wrote, concluding ". . . there will be no substantial change from our present capability."

Fred Brooks, a professor at the University of North Carolina, fired the second shot in his "No Silver Bullet" article. Software development, Brooks said, is complex work and always will be. Don't expect any silver bullets to slay the werewolf of software complexity, he said.

Even more recently, two of the researchers deeply involved in the field of automated programming fired a third salvo. Charles Rich and Richard C. Wa-

Continued on page 21

Glass is president of Computing Trends, a software engineering education and consulting company based in State College, Pa.

Horror of a hacker in the hoosegow

GLENN RIFKIN

As the bars slide shut with a bang, the new prisoner feels an empty, ominous feeling in his stomach as the sound of freedom echoes away. He looks at the steel bars for a long time and then turns toward the two men sharing his cell.

The bear-like one, at least 6½ feet tall and 300 pounds, has a gold loop earring shining next to his bald pate. The other, a small, dark weasel of a man who chews incessantly on a toothpick, looks the young newcomer over.

"What you in for, kid?" the weasel asks with a snarl.

"Yeah, whaddaya, a cop killer?" the hulk adds.

"Hacking," the young man replies self-consciously.

"Hacking? Whaddaya mean hacking? You moidered a guy and hacked him up?" the weasel demands. "Whaddaya make outta dat, Monsta? Dis guy don't look like much of a hacker to me."

"You're right, Looie," the big one says. "He don't look like he could hurt a flea."

"Computers," the new prisoner says quickly.

"What? You moidered a computer? What's he talkin' about, Monsta?"

"Geez, I don't know, Looie."

"I didn't murder anybody," the young man replies. "I am a hacker. I broke into the computer system at the Defense Department, and . . ."

"He's a B&E man, Looie, a lousy thief," the big guy announces.

"So wha' happend kid, they catch you climbing tru da window?

"No, no, you don't understand. I broke into the system, the Defense Department *system*. I used a personal computer in my apartment and broke into the files electronically. That's what a hacker does."

The other prisoners look at each other skeptically.

"No way, kid. I knew Murray the Hacker before dey toasted him. He used to hack up little ol' blue-haired ladies and make off with their Social Security checks. He was one nasty SOB. Now *he* was a hacker. I don't know bout dis computer stuff," Looie says.

"Look, I destroyed files worth almost $200,000. I really messed up their system. I published passwords, telephone numbers and directions on how to breach their system all over the electronic bulletin boards. I am one mean dude."

The two other prisoners look at each other and begin giggling, and then they break into gales of laughter. Faces red, doubled over, they scream with hysterics.

"Oooh, my side's startin' to hurt, Looie," the hulk howls.

"Me too, Monsta. Wait til the boys in the shower room meet dis guy. Da Hacker! What kind a time you doin'?"

The young man grows scared and then turns defiant. "Well, it takes intelligence and guts to do what I did. I got nine months . . . without parole," he almost shouts. "What the heck are you in for?"

The two prisoners stop laughing and gulp for air.

"Nine months! Nine months. Did ya hear dat, Monsta? Hey, Monsta, tell him how long you're in for," Looie says.

"I think it was 35 years last time," Monsta replies. "Yeah, dat's right. I done some bad stuff."

"Course, it was nothin' like this wild man," Looie sneers. "Dis guy messes wid computers. Wait 'til Bugsy hears about dis. Oooh, kid. Welcome to the joint."

With that, the young man turns and starts pounding on the bars. "Guard! Guard! There's been a mistake, a serious mistake. I'm in the wrong cell. I'm just a hacker. This isn't the white-collar-crime block. Come quickly."

His cellmates just sit and smile in amusement. The weasel lies back on his bunk and says through the side of his mouth, "Ya know, Monsta, dis prison is really goin' to hell. They're throwin' just about any scum in here dese days."

Rifkin is a *Computerworld* senior editor.

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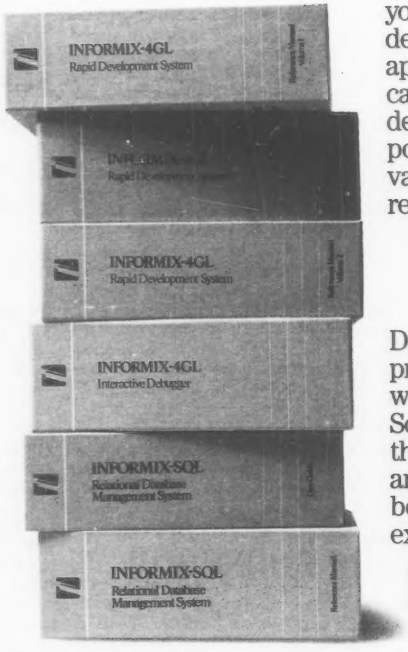

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Hargrove

CONTINUED FROM PAGE 19

The departure of the superuser can also adversely affect the political atmosphere of the company. Users who were used to relying on a special resource now find a void. Their raised expectations are quickly dashed. Hostility toward MIS rapidly escalates.

What can MIS do? Are we doomed to keep reliving the superuser feast and famine?

One solution that has been bandied about in the trade publications for the past couple of years is to grow your own superuser rather than depend on one developing out of the end-user ranks.

Growing your own requires instilling business expertise into someone on your technical staff. Though business knowledge is now often considered mandatory within MIS, teaching it to some of your technical people may be difficult.

Teaching hurdles

The first impediment lies in the nature of the personnel who are involved. Most people enter MIS because of an aptitude and/or desire to work in a technological environment — not to become a purchasing agent, an accountant or a financial analyst.

Second, most MIS personnel exhibit a loyalty to their profession but not necessarily to their organization. Thus, it is difficult to convince someone that knowledge of the business they work in is paramount to technological expertise.

Furthermore, the market itself does little to promote the importance of business knowledge. One can easily find ads in local newspapers for programmers or database specialists, but try finding an organization that seeks an MIS professional with a firm understanding of Corporation X's financial system.

However difficult growing your own business experts/technicians may appear, it is by no means impossible. One method is to tell the technician that for a designated period of time, he will become a user. He will report to accounting perhaps, where he will do data entry, a little light filing to learn the paper data flow and perform all those functions that interface with the computer.

Several things may happen. Your technical staffer may learn that not all problems demand technical solutions, or he may quit. With a solid understanding of the system, he might be able to determine when procedural, rather than technical, solutions would apply or learn that design richness, while technologically nifty, may have little to do with efficiency.

He might even get a glimmer of the world the user sees and learn that personal computers, mainframes or calculators are simply tools, not objects of worship, and as such, are merely means to achieving the company's business ends.

That is a lesson that the superuser who grows out of the end-user ranks already knows.

Glass

CONTINUED FROM PAGE 19

ters, MIT professors, called automatic programming a "cocktail-party myth," saying they expect evolutionary progress toward that goal but no breakthroughs.

We in the software field are still absorbing these opinions. I do not see any evidence yet that the positions of Parnas, Brooks and Rich and Waters have caused any change of direction in how we go about planning to build software.

One of the changes that has to come about when they are absorbed is the gradual withdrawal from Theory X management. Once we give up on the idea of using de-skilled software developers, it simply does not make sense to coerce and herd skilled professional workers toward the goal of quality products.

What will it mean to withdraw from Theory X management? Well, it will not mean completely moving away from such things as discipline, standards and quality assurance. It will not mean that, because of all the creative spirit needed for skilled software development, huge software must still be developed in team and organizational settings. And discipline, standards and quality assurance are ways of maintaining order in an atmosphere that could otherwise degenerate into chaos.

It will, however, mean attaching new meaning to these terms. Discipline and quality assurance will be tempered with shared responsibility. Standards will be tempered with wisdom and parsimony.

Will we, on discarding the Theory X approach, return to Theory Y? Probably not. Software has gotten to be too big an enterprise — tackling problems that are orders of magnitude bigger than we used to even dream of — to go back to those freewheeling days. Theory Z is probably where we will end up — shared responsiblity for software's goals, their definition and their achievement and the realization that quality products come from motivated, quality people using adequately funded quality processes.

But to leave behind the problems of Theory X and move on to the future of a Theory Z appoach, we need to look back.

Remembering the days of the software developer who built quality products because any other approach was unthinkable, we can carve out a future in which that basic tendency is harnessed in some meaningful way in the new, massive world of software development.

If we look backward accurately enough, we will begin to get a vision of where the future ought to be.

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CW

HARD TALK

Rosemary Hamilton

Honeymoon over?

There is a feeling in the air that the IBM Application System/400's honeymoon is over. Recently, some questions were raised about the system's performance. While I wouldn't say there's trouble in IBM's newfound paradise, there are some questions that don't yet have adequate answers.

IBM's AS/400 announcement late last month looked like a typical introduction of enhancements — a high-end model, another growth option for low-end users and price cuts on memory upgrades. But some people said that what IBM was really doing was delicately taking care of a problem before it got blasted across the front pages of trade publications.

These people claimed that users found AS/400s needed a lot more memory than they originally thought. Observers said IBM's announcement last month was really a way to address that problem and is the reason IBM gave such generous price cuts on memory upgrades and boosted the main memory capacity of the low ends.

IBM said that is simply not

Continued on page 32

High-growth options increase

Companies look beyond IBM 370 when time comes to leave midrange

ANALYSIS

BY J. A. SAVAGE
CW STAFF

Not too many years ago, if a medium-size business wanted to grow up to be a big business, it had to grow into a mainframe architecture — most commonly the IBM 370 family.

But as Unix moves into ever more powerful configurations and several proprietary architectures broach the low end of mainframe power, users on a growth path are finding new alternatives to being forced into the 370 canyon. Users are viewing various options such as IBM's own Application System/400 midrange systems, Unix systems and the use of application-specific systems.

"Those who don't have to buy an IBM 3090 [mainframe] are avoiding going to a mainframe environment," said Dale Kutnick, president of The Meta Group, a Westport, Conn., consulting firm. Companies that know they will never break into the Fortune 500 have no reason to go with 370 architecture, Kutnick said.

"In the past, if you wanted to go beyond a certain ceiling, to break through you had to go to 370 architecture," agreed Peter Burris, an analyst at Framingham, Mass.-based International Data Corp. (IDC). He said he would not bet on whether the segment choosing non-370 architecture will grow faster than those that remain with mainframes, "but there are a lot of people rethinking their basic information architecture."

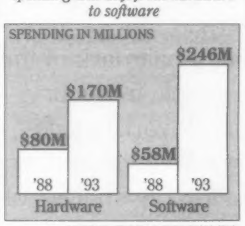
Vendors are increasingly offering to midrange users computers that can grow with their needs. Examples include the IBM AS/400 series and Unix-based systems whose makers claim performances of up to 140 million instructions per second (MIPS).

Continued on page 28

Data View

Smart money

The focus of manufacturers' AI spending will shift from hardware to software



SOURCE: FROST & SULLIVAN, INC.
CW CHART: JOHN YORK

Knowledgeware heading toward OS/2 platform

BY STANLEY GIBSON
CW STAFF

The computer-aided software engineering (CASE) platform of tomorrow will be a personal computer running OS/2. That is the future that Knowledgeware, Inc. is planning on, the company told users at its annual user group meeting last week.

"We believe the acceptance of OS/2 will be more rapid than most think," said Terry McGowan, Knowledgeware's president and chief operating officer. "OS/2 and SAA are both required. The OS/2 Presentation Manager will be the user interface."

In choosing this direction, Knowledgeware is apparently moving in step with IBM, which is sending out signals that OS/2-based CASE workstations will come into wide use, working interactively with host systems.

"1989 will see a move to cooperative processing," said IBM Vice-President Earl Wheeler. "OS/2 Extended will work with a host-based repository. The workstation will be the focal point of application development."

McGowan vowed support for IBM's repository as well, saying that Knowledgeware's encyclopedia is constructed in the same manner that IBM's repository will be, with planning, analysis,

Continued on page 32

Bachman readies CASE tools

BY AMY CORTESE
CW STAFF

CAMBRIDGE, Mass. — Bachman Information Systems, Inc. rounded out its computer-aided software engineering (CASE) offerings recently with the announcement of Version 2.1 of its Bachman/Re-engineering product set.

The software, scheduled for March availability, features a new IBM DB2 design tool called Bachman/DBA for DB2 — an improved version of Bachman/Data Analyst — and extensions to Data Analyst that capture IBM IMS and flat file structures for reengineering, according to the company.

The products give the Bachman product set new data modeling and design functionality for database designers and administrators. Previously, a database professional using Bachman's Version 1.0 products was able to

Continued on page 31

Inside

- Sifting through a warehouse full of records. Page 25.
- Mail-order firm Potpourri turns from IBM to Sequoia. Page 25.
- Go shopping on NCR's touch-video terminal. Page 40.

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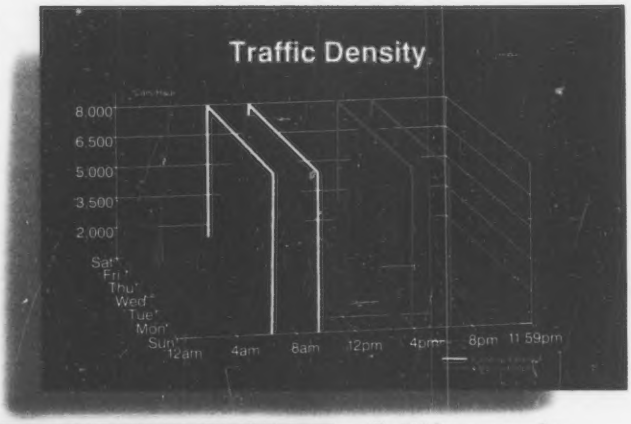

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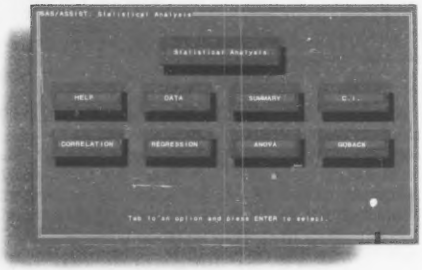

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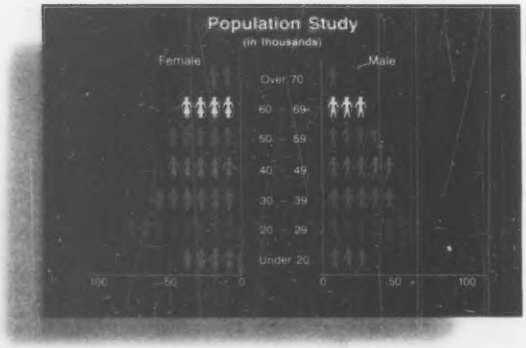

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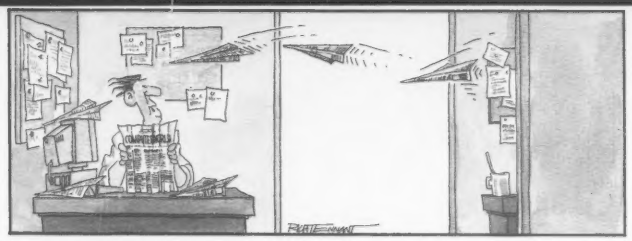

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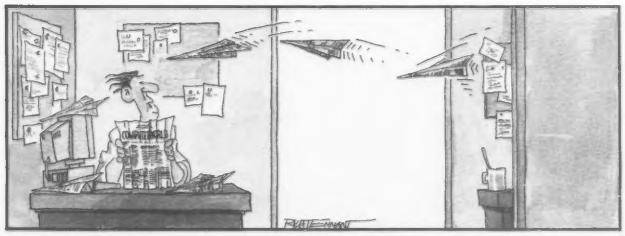

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38. Data Comm. Network/Systems Mgt.

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SOFT TALK

Stanley Gibson

Welcoming IBM's open door policy

Any good meal is preceded by hors d'oeuvres.

And any IBM announcement will henceforth be preceded by a certain period of hints and quasi-secret briefings to build anticipation. Such is the dictate that has come down from the highest levels of the industry giant, according to a reliable source.

IBM appears to be following this practice with regard to upcoming and widely anticipated software announcements. At the recent Knowledgeware user conference, IBM's Systems Application Architecture guru, Earl Wheeler, made clear that what is generally known as SAA Office will soon be out the door. When it is introduced, he indicated, there will be a roomful of independent software vendors set to go with applications that already work with the new software.

This mirrors the IBM Application System/400 announcement in June 1988; that system was ushered into the world by hordes of independent software vendors. In contrast, IBM's 9370 was notable for its dearth of software.

Indeed, the announcement prototype to be emulated is that of the AS/400, which was pre-

Continued on page 31

Abbott stems records overflow

$4B firm installs automated text-retrieval system to manage documents

ON SITE

BY AMY CORTESE
CW STAFF

NORTH CHICAGO, Ill. — Keeping track of the documents and records of a $4 billion company is not an easy task, especially when they fill up a large warehouse as they do at Abbott Laboratories, Inc.

Abbott's corporate records department recently completed a six-year project to replace 500,000 3-by-5 index cards with an automated text-retrieval system to locate and manage its records. Information Dimensions, Inc.'s Basis text management software running on a Wang Laboratories, Inc. VS 100 provides the solution.

There is no plan to store those documents on-line, according to Cindy Strowig, manager of corporate records, because the current storage cost per foot is so low that it would not be cost-effective. However, the indexing and tracking of the documents is critical to almost all areas at Abbott, which collectively issues about 30,000 requests for stored records annually.

Quick access to records containing corporate and government regulatory information is critical to the pharmaceutical giant.

Boxes on boxes

The corporate records department receives documents, often by the boxful, after their "active" life in other departments is over. The department is then responsible for storing and indexing these documents for retrieval if necessary.

In addition to the 28,000-square-foot warehouse, Abbott maintains 2,000 square feet of storage on-site. Eight workers

Continued on page 33

Systems Industries fills out DEC drive line

BY JAMES DALY
CW STAFF

MILPITAS, Calif. — Systems Industries (SI) made a strong pitch for the lucrative Digital Equipment Corp. Vaxcluster peripherals market recently with the rollout of a series of storage subsystems and high-capacity disk drives.

Last week, SI unveiled the Shadow series data storage subsystem, which allows on-line fault-tolerant protection of disk-based data for Microvaxes.

The Micro Power Pac Shadow series offers up to 1.2G bytes of data storage per subsystem, the firm said, and makes DEC HSC-style shadowing available on the Q-bus using 5¼-in. disk drives. The series is slated for second-quarter availability and will cost from $22,900 for a two-drive SI56 model to $52,000 for a four-drive SI57 model.

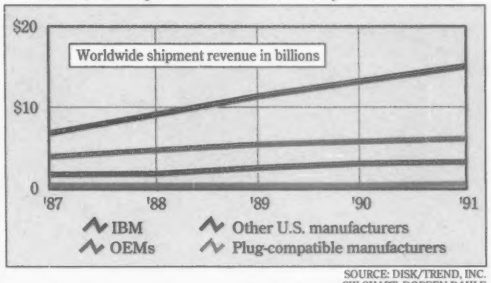
The announcement comes on the heels of the recent introduction of a high-capacity disk drive

Continued on page 29

Data View

Rigid disk drive forecast

IBM will remain the big breadwinner in the magnetic rigid disk drive market, but competitors should also see steady climb in revenue



SOURCE: DISK/TREND, INC.
CW CHART: DOREEN DAHLE

4381 user switches to Sequoia

BY ROSEMARY HAMILTON
CW STAFF

MEDFIELD, Mass. — The Potpourri Collection, Inc., a mail order company, was caught recently with a rapidly growing business and an IBM 4381 that did not give it enough horsepower.

Instead of moving up in the IBM world, the potpourri and gifts retailer selected a fault-tolerant system from Sequoia Systems, Inc. Last month, the $50 million privately held company became the first user of Sequoia's top-of-the-line system, the Series 300, which was officially announced last week.

Potpourri's Chief Operating Officer Nelda Miller, who handles MIS and other corporate functions, said the decision to go with Sequoia was actually a simple one.

Miller said she wanted a transaction processing system that supported 100-plus users and efficiently ran Pick Systems' Pick operating system. She also wanted the system fully operational before this August, when the busy season for Potpourri begins. These requirements greatly narrowed the list of possibilities.

IBM, for instance, recommended that Potpourri rewrite its Pick-based applications in Cobol and upgrade to a bigger IBM processor, Miller said. That job would have taken months of man-hours to complete.

"We're growing too fast to devote the kind of time that

Continued on page 29

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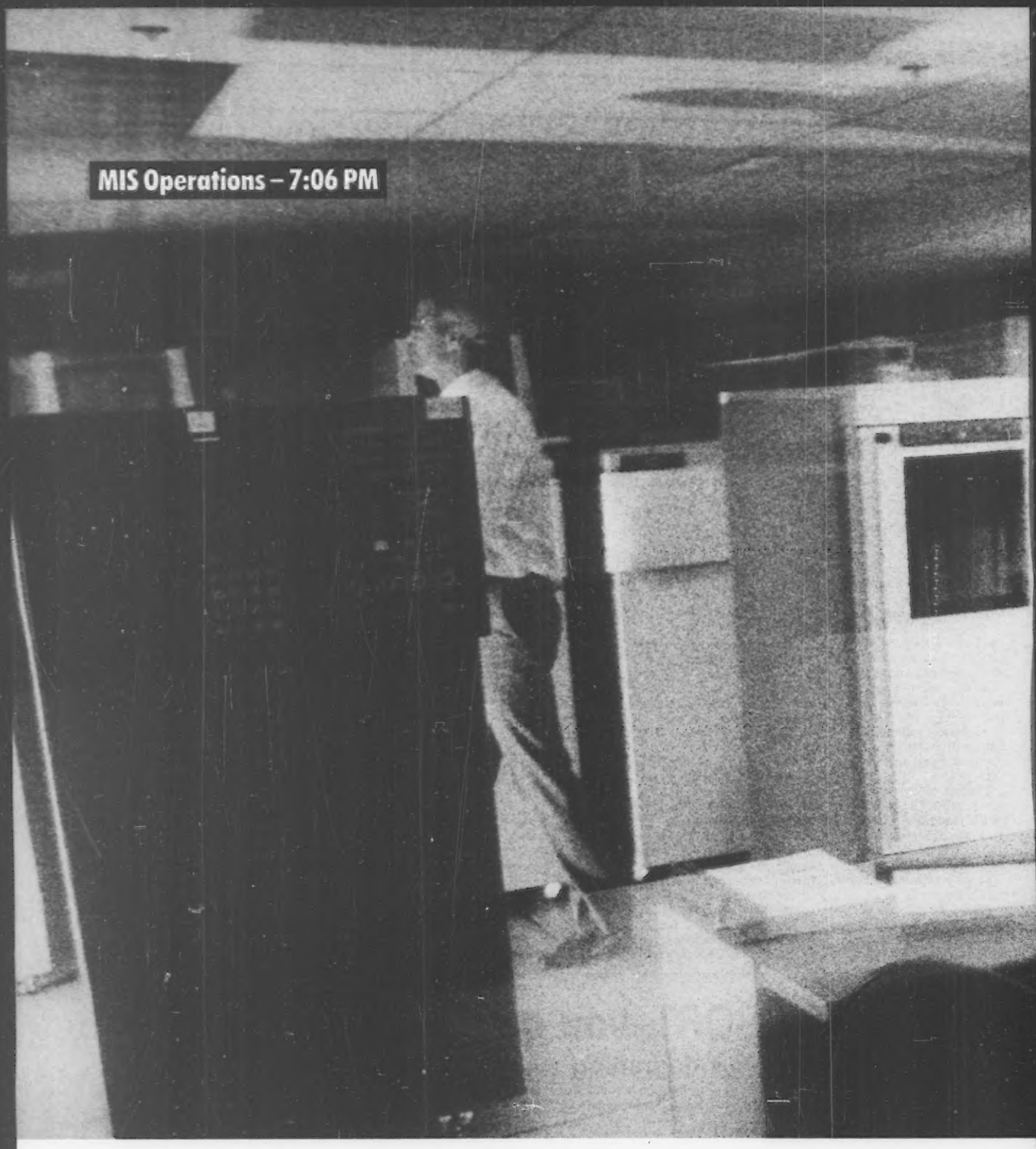
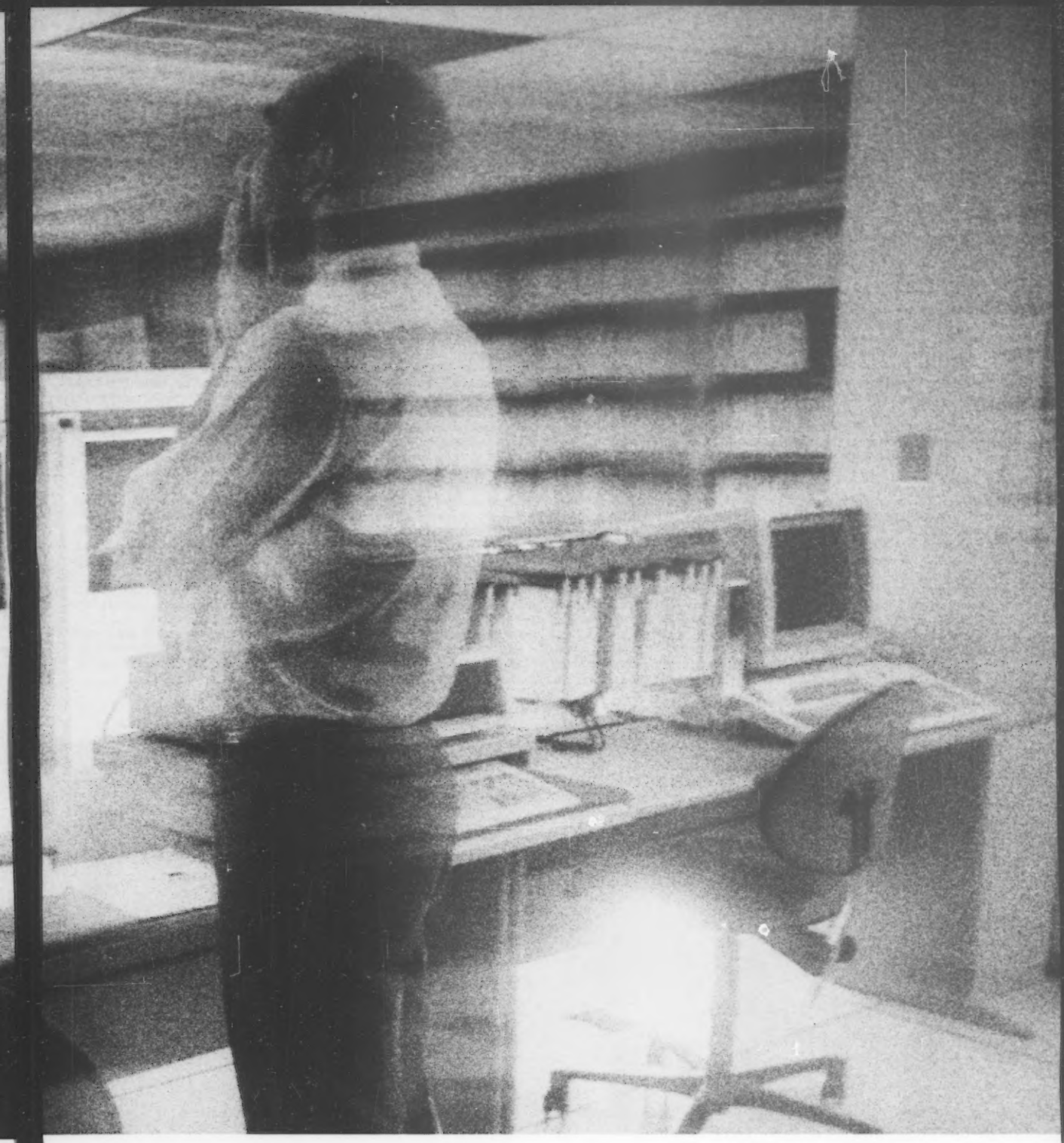


Situation: Critical

"…37 new sites in 4 regions dumped in my lap…and they want my recommendation by tomorrow? Who're they kidding?…Means we've got to decentralize…Distribute the application…Build a high integrity network…Add processing power. We've got to be on-line in how long? Five months? And put it all together without losing a single transaction?… Who can I put on it? And what, God forbid, if the computer goes down?"



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HARD BITS

Pact shares HP magneto-opticals

Applied Magnetics Corp. signed a deal with **Hewlett-Packard Co.** to use certain HP patents and expertise relating to magneto-optical recording heads. Applied Magnetics is currently developing a line of optical recording heads.

Alliant Computer Systems Corp. said Creare, Inc.'s Fluent/BFC. fluid dynamics software has been tailored for its parallel-processing systems.

McDonnell Douglas Information Systems Co. expanded its Digital Equipment Corp. VAX maintenance service to include the VAX 8000, VAX 3000 series and the Vaxstation 2000 series. The additions mean McDonnell Douglas now services all VAX systems on the market.

Meanwhile, **DEC** announced a new release of its free on-line product information ordering service, which it calls The Electronic Store. The company said Version 2 boasts a faster response time than the previous version. It has a new menu that was designed to get users to the information they need more quickly. The Electronic Store was first introduced in 1984. It requires a 1,200 or 2,400 bit/sec. modem and a VT100-compatible terminal.

Companies

FROM PAGE 23

Although reduced instruction set computing MIPS reportedly do not accomplish the same amount of work that traditional architecture MIPS deliver — such as those of IBM — a 100 MIPS-plus proprietary architecture machine is on the horizon from Tandem Computers, Inc.

Unix vendors, Digital Equipment Corp. with its proprietary architecture and Tandem are said to be making great strides toward nabbing people from the mainframe market.

Kutnick maintained that IBM is not able to keep midrange people happy with its 370 option. "IBM is holding its base but is not increasing it; otherwise they'd sell more 9370s," he said, estimating the company has sold only 8,000 9370s.

Anthem chooses AS/400

Earl Mederios was contemplating moving Anthem Electronic, Inc.'s applications from its IBM System/38 Models 700 and 40 to the 370 environment or a Tandem system last year. The semiconductor and subsystems distributor decided to do neither.

"We have a huge investment in applications based on custom code," said Mederios, director of the San Jose, Calif.-based company's information systems. "Then, out came the AS/400. We could get some 50% more horsepower without massive conversion." He said his company was expecting information systems needs to grow at 25% per year and he expects the AS/400 to support that growth.

Mederios noted that a mainframe would cost three times as much as the AS/400 Models 40 and 60 he expects to install this month and would demand a larger support staff.

In addition to the option of staying within a product line, as Anthem is doing, there is a trend toward adding application-specific CPUs as needed.

For instance, Bell Atlantic Corp. has plenty of mainframes, but for pilot projects allowing subscribers to access libraries of information in Pennsylvania and Washington, D.C., the company chose single-application midrange systems.

Managers for the two pilots, called "gateway services," chose two different fault-tolerant hardware platforms to deliver nearly the same program.

"We didn't go out looking for a hardware platform on its own," said Ken Hand, gateway implementation product manager at Chesapeake and Potomac Telephone Co. Hand chose a Tandem CLX primarily because the software he liked ran on Tandem's Guardian operating system. Eventually, Hand may even go with a Unix system, he said.

In Philadelphia, Bob Hunsberger, Bell of Pennsylvania's associate staff manager, put his gateway service on an IBM System/88. Like Hand, Hunsberger said his decision on the hardware was software-driven, although he chose a different software package.

Just as Hand kept his mind open to Unix systems after sinking money into proprietary architecture, others are keeping the Unix option in mind.

Mike Prince, data processing manager at Burlington Coat Factory Warehouse, Inc. in Burlington, N.J., bought a Unix-based Sequent Computer Systems, Inc. parallel processor as an application-specific device and ended up replacing his former Honeywell, Inc. mainframe with three Sequent computers.

Prince said he evaluated the 370 architecture but that because he had decided to use an Oracle Corp. relational database, the 370 route cost "so much more in terms of transactions per second."

Unix is also gaining ground in start-up situations. "You can take a basic Unix operating system and shape it for development," said Allan Baumgartner, an analyst at San Jose, Calif.-based Dataquest, Inc. "Now one individual can understand Unix in six months vs. needing an entire team to understand MVS/ESA."

If anything will steer midrange users into the 370 architecture, it will be deep discounts in the used market.

"That's IBM's secret weapon," Baumgartner said. He maintained that IBM will keep its grip on the midrange market because a moderate user can "comfortably stay five to seven years behind leading technology and spend only one-fourth of the dollars."

Other analysts countered that cut-rate prices on used equipment are not enough when a user considers the overhead associated with mainframes. The low price of the hardware is "only part of the equation," said Steve Josselyn, an IDC analyst.

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SOFT NOTES

Nixdorf to bundle OSF/Motif, Targon

Nixdorf Computer Corp. recently said it will offer OSF/Motif as a bundled component of its Unix-based systems family, Targon. Nixdorf, a founding member of the Open Software Foundation (OSF), claimed its license agreement to build applications based on OSF/Motif is the first ever signed.

Quadratron Systems, Inc. and Oracle Corp. said they recently signed an agreement under which they will exchange technology in order to integrate the products of both of the companies.

The goal will be for Quadratron and Oracle users to extract data from Oracle databases and use it as editable text in Quadratron applications. Quadratron makes office automation software to run under AT&T's Unix operating system.

Interleaf, Inc. in Cambridge, Mass., said it recently signed a volume license agreement with **Sun Microsystems, Inc.** that will allow Sun to install unlimited copies of Interleaf TPS Core software in any of its facilities worldwide.

TPS is designed as a networked product mainly for full-time authors within a distributed publishing environment.

Bachman Information Systems, Inc. in Cambridge, Mass., has been designated an authorized application specialist for DB2 by IBM. Bachman will work with IBM to help customers use DB2 through utilizing Bachman/Database Administrator for DB2.

Data General Corp. in Westboro, Mass., said it recently signed an independent software vendor agreement with TLD Systems Ltd. in Torrance, Calif. Under terms of the agreement, TLD will supply the Ada/1750A Compiler System for use with the entire DG Eclipse MV line of computer systems. Pricing for the DG systems ranges from $5,000 on a low-end system to $90,000 on an Eclipse MV/40000 HA Model 4.

Sequoia

FROM PAGE 25

would have taken," she said.

Potpourri then selected three vendors that offer the Pick operating system: Sequoia, Stratus Computer, Inc. and Prime Computer, Inc. That requirement goes back four years, when Potpourri purchased a Pick application and fine-tuned it, Miller said. Finding it a relatively easy operating environment, the MIS department began writing other applications in Pick. Before long, all of Potpourri's on-line applications were Pick-based.

Not by default

Prime was ruled out because its Pick operating system is actually a Pick-like system that would have required rewriting some code, Miller said.

Stratus was rejected because its Pick offering is relatively new and Miller said she could not find any Stratus users running the operating system. "We didn't want that kind of a learning curve," she said.

That left Sequoia. But the vendor did not win by default. Potpourri found that Sequoia offered advantages over the other contenders. For starters, Miller visited several users running Sequoia's Pick. This, she said, made her comfortable that Sequoia's Pick environment was "a proven entity."

Sequoia beats 4381

Secondly, Potpourri tested the Sequoia system against the 4381 and was pleasantly surprised. On the 4381, it took four hours to compile 1,250 Pick Basic programs. On the Sequoia Series 200, which Potpourri tested before the Series 300 became available, the same number of programs took one hour to compile and catalog. That same batch of programs was later compiled and cataloged on the Series 300. It took 30 minutes, Miller said.

She said the short-term plan is to run more tests and benchmarks on the Sequoia system. At the same time, the MIS staff will be rearranging its IBM lineup. Currently, an IBM 4361 runs all Potpourri's batch applications, while the 4381 handles the on-line programs.

This spring, the lease will run out on the 4361 and Potpourri will get rid of it. At that time, the 4381 will take over as the batch system and the Sequoia Series 300 will handle all on-line applications.

With the 4381, Potpourri found a drastic increase in response time when more than 70 users were concurrently working. Miller said she expects the Sequoia system to support 120 users initially and, if all goes well, 150 users by year's end.

The goal for Potpourri now is to be fully operational with the Sequoia system by July 1, so the company has a few month's experience with it when the busy season hits.

Drive line

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that SI officials said bests the storage capacity of DEC's RA90 drive by more than 42%.

The SI95C disk drive reportedly can provide more than 13.5G bytes of on-line storage per cabinet when configured with the maximum eight drives, the supplier of DEC-compatible mass storage systems said. It is offered in 2-, 4-, 6- and 8-drive configurations with respective formatted capacities of 3.4G, 6.9G, 10.3G and 13.7G bytes, the firm said.

The drive will be available in the second quarter and will sell for $217,000 for a full eight-drive, 13.5G-byte configuration, including warranty and installation, company officials said.

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Gibson

FROM PAGE 25

ceded by about two years of speculation. Although IBM shunned the "Silverlake" rumor mill at first, most now believe that it chose to use the mill to its advantage in the final six months before the AS/400 unveiling.

The prototype to be avoided is that of the 9370. While the AS/400 was preceded by speculation, the 9370's announcement was followed by it. What was it intended to be? Who would buy it? Those questions were answered for the AS/400 long before its introduction.

In developing the AS/400, IBM solicited user and software developer recommendations. The same procedure has been followed in developing IBM's repository. Such knowledge of user demand is a tremendous help to a manufacturer in knowing whether a product is wanted — it removes much marketing risk.

No guarantees

However, the procedure cannot guarantee that all products will emulate the initial success of the AS/400 and avoid the lackluster fate of the 9370. No matter how many focus groups or market research surveys are conducted, there cannot be absolute certainty that the product will succeed. Coca-Cola, for example, did very extensive taste testing before introducing "new Coke" a couple of years ago. But the product fell flat. Maybe sampling one sip of a beverage is different from drinking a whole can.

Similarly, users' opinions offered in the isolation of a session with IBM may not always be consistent with the reality they face back at the shop. Economic conditions, technology changes and timing could mean that when the product is introduced, customers who said they wanted it won't any longer.

As to months of preannouncement speculation, we in the press could grow tired of providing launch facilities for trial balloons. In addition, if a woefully inadequate system were hyped well before its announcement, the counterreaction to the product among the user community will be exaggerated.

For IBM, there is also the risk of treading thin antitrust ice with this approach. But it appears that IBM has thought this problem through and believes it is on solid footing. The practice has not been seriously questioned by any competitors yet.

Let's welcome the new, open IBM — more information is always better than less. Users should make the most of it.

Gibson is *Computerworld's* senior editor, software.

Bachman

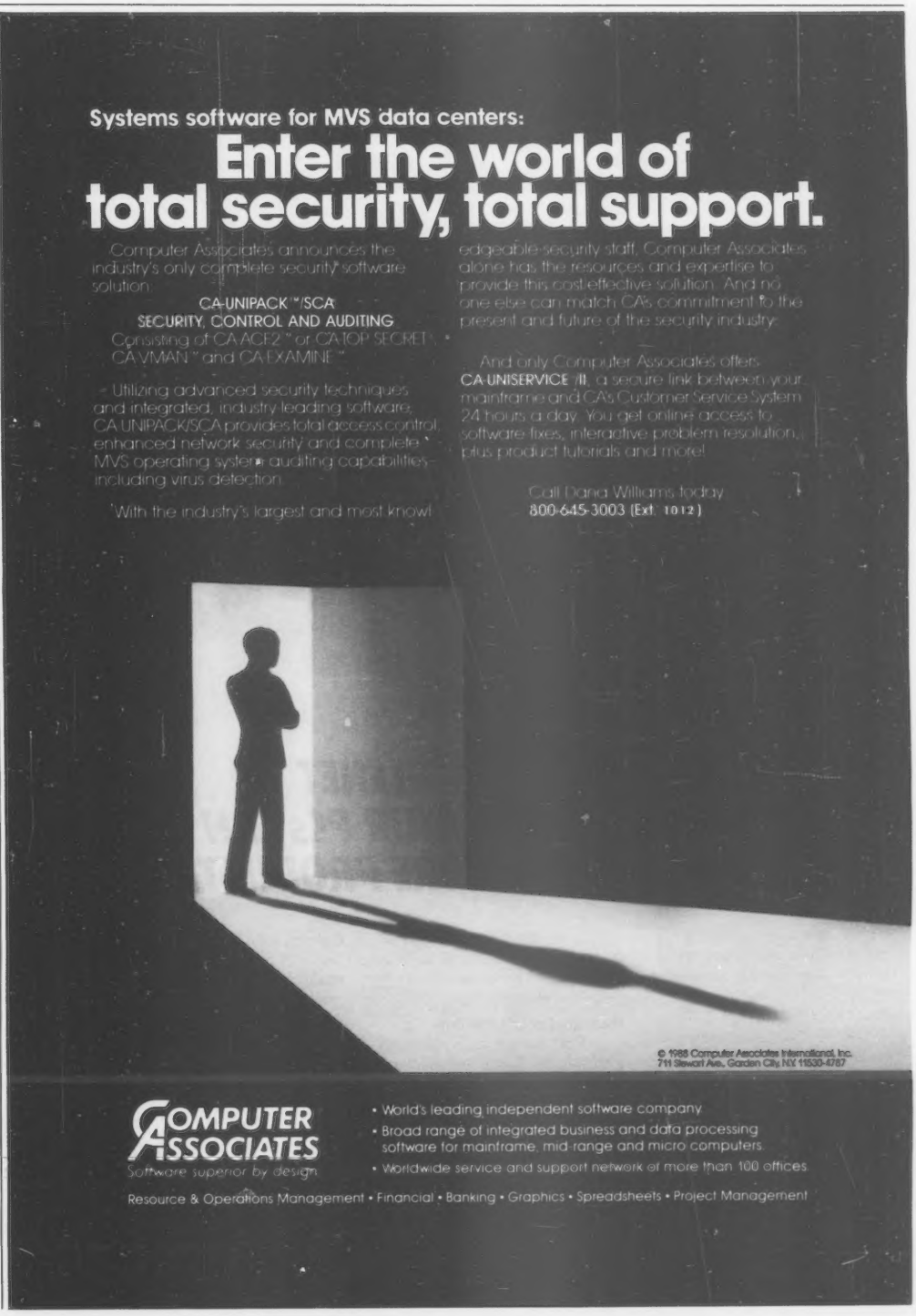
FROM PAGE 23

build a DB2 data model from scratch or by reengineering Culinet Software, Inc. IDMS/R database descriptions. With the Version 2.1 software, DB2 data models can also be built from captured IMS or Cobol file descriptions by reengineering existing DB2 descriptions or by importing from a code generator.

The Bachman products make use of expert system technology to advise database professionals on DB2 database design and administration — an area of expertise that is scarce, according to Richard Manasseri, product manager for the Bachman DB2 products. The new version also introduced graphical representation of DB2 database design in the form of Bachman DB2 Diagrams, making design concepts easier to comprehend. Database administrators can work with diagrams instead of the SQL language for the first time, in much the same way an engineer works with computer-aided designs, Manasseri said.

Cambridge-based Bachman's reengineering products translate existing database designs into database-independent designs, which can then be forward-engineered into DB2 designs.

All the Bachman products run on Intel Corp. 80386-based personal computers or AT&T workstations running MS-DOS. Prices for the new software range from $5,000 to $10,000 for each of the five modules.



Hamilton

CONTINUED FROM PAGE 23

true, and a spokesman offered this explanation: A few consultants have made remarks recently that the performance of an AS/400 is not what people expected and concluded that there was a problem with the machine.

Once a few said it, other consultants jumped on the bandwagon. Before long, there was widespread speculation circulating of AS/400 problems.

A reasonable explanation, yes, but one that doesn't quite put the matter to rest. There remain a few questions that won't go away.

Let's start at the low end. IBM acknowledged that some users were having problems last fall when running low-end AS/400s with minimum memory configurations in System/36 mode.

To help these users out, IBM offered them an additional 4M bytes of memory that they could use for one year at no charge.

The purpose of this loaner, according to IBM, was not to give people more memory because the system couldn't function well with the minimum amount. The purpose, IBM said, was to assist people while they converted to AS/400 native mode. IBM had said all along that users wouldn't get top performance in System/36 mode.

At the time, IBM also said that once the code was converted to native mode, users should experience no performance problems with the memory configuration they had started out with.

NOW, WHY WOULD a vendor go to such lengths to make additional memory cards so cheap for users, if lots of users didn't require a whole lot more memory?

If the original configuration was adequate, then why did IBM boost the maximum memory configurations on both the B10 and B20 so soon after their introduction?

IBM says the recent announcement of increased main memory and the loaner program have nothing to do with each other and that the additional memory for low ends in no way says that what was provided before wasn't adequate.

So does that mean IBM is providing something that nobody has expressed a need for?

The next question concerns mid-range and higher end AS/400 users. According to IBM, no one in this group has complained of performance problems. Maybe this is more a question of how one defines "problem." There are users that have run programs on these systems and found the performance does not meet their standards.

Taking IBM at its word then, we saw a $1,000-per-megabyte price cut on additional memory, although no users have thus far complained that they need more memory. IBM says it cut the prices because of recently gained manufacturing efficiencies.

Acceptably speaking

OK. Even though we've all heard about "manufacturing efficiencies" before, let's accept this as a reasonable answer. But then there's the matter of the trade-in deal to contend with. Users that bought additional memory can now trade that in and put what they paid for it toward payment for the new, lower priced memory card.

In essence, this is a retroactive price cut for anyone that bought more memory since getting their system last fall.

Now, why would a vendor go to such lengths to make additional memory cards so cheap for users, if lots of users didn't require a whole lot more memory? IBM has provided reasons for its actions for both low-end and higher end users. But somehow, the questions still linger.

Hamilton is *Computerworld*'s senior editor, systems.

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Knowledgeware

CONTINUED FROM PAGE 23

design and construction of applications all interacting with a common data store.

Wheeler declared that IBM itself will force in-house developers to migrate to the new platform.

"Within IBM, all developers and programmers will have a PS/2 within a year," Wheeler said.

Other offerings announced

Knowledgeware also announced several products at the conference:

- Release 5.0 of Information Engineering Workbench/Workstation (IEW/WS), a microcomputer-based CASE product, which can support reengineering of existing applications into a CASE environment.
- Availability of IEW/Gamma, a mainframe-based application generator.
- Early support in the second quarter for the IEW/Construction Workstation, a microcomputer-based code generator.

The conference was attended by some 800 users, an increase from 400 a year ago.

Knowledgeware claimed it now has 11,400 products installed worldwide at 1,300 customer accounts.

Abbott

FROM PAGE 25

staff the warehouse to retrieve the precisely stored documents on request.

Under the old paper system, records were alphabetized and cross-referenced, but employees had to wade through a mountain of indexed material to find the information they were looking for. The index cards were kept in triplicate, and the physical card file grew so large that it was becoming difficult to maintain, Strowig said.

Thus, the department knew it had to automate. Because of the volume and variety of information the system needs to accommodate — an index could range anywhere from two words to three screens — variable field lengths were required. In addition, a three- to five-second response time was targeted, and perhaps most important — Abbott demanded ease of use and maintenance. The corporate records department wanted to be able to support the system internally rather than involving MIS. The system also had to be inexpensive.

The department considered offerings from IBM, Wang and independent software providers, as well as a possible internal MIS development effort.

Trial and error

After implementing Wang's Alliance software package, the department found that it could not support the volumes required. Abbott then heard about and started using Basis, a text information management system running the already-installed Wang hardware.

Within three months, using an outside data entry firm, more than 140,000 indexes were converted into two databases. Strowig joked that the staff made a bonfire of the index cards to celebrate.

With the Basis package, the department has flexibility in defining fields and can now search for a record based on several criteria rather than by department number as with the old system.

The system is meeting the ease-of-use and support requirements as well. Many of the record department's 21 employees are entry-level. "Most of our new employees aren't familiar with computers, and some start without any keyboard skills at all. But no one has trouble using Basis," Strowig said. The department handles its own updates and changes and has one full-time, nontechnical staff member dedicated to the maintenance of the database.

The automated index system led to significant savings, Strowig said. She measured one function, the destruction order process, which determines the useful life of a document and when it is scheduled to be destroyed. This process used to take two people two months to complete, Strowig said, but it now takes six hours. "And this is only one small part of what we do," she said.

Six databases have been created containing information on each document that indexes its contents and location. The databases are grouped by areas such as product information, government submissions for product approval and operating records.

Right now, the corporate records department inputs and maintains the system for all departments. But in the future, Strowig hopes that each department can input and maintain information on its own stored documents. Information on documents can be loaded before they are actually received for storage so that active ones can be tracked as well.

Strowig estimates that no additional staff will be required by these departments because they already maintain manual index files for the documents while they are active.

So far, only one of corporate record's customers has gone online. The hospital products group now directly loads information into the database itself. Security features built into the software assure that only hospital products records can be accessed by that department.

Another future goal is to link the Basis system with the department's Wang word processing and electronic mail software, also accessed via Wang PCs and dumb terminals.

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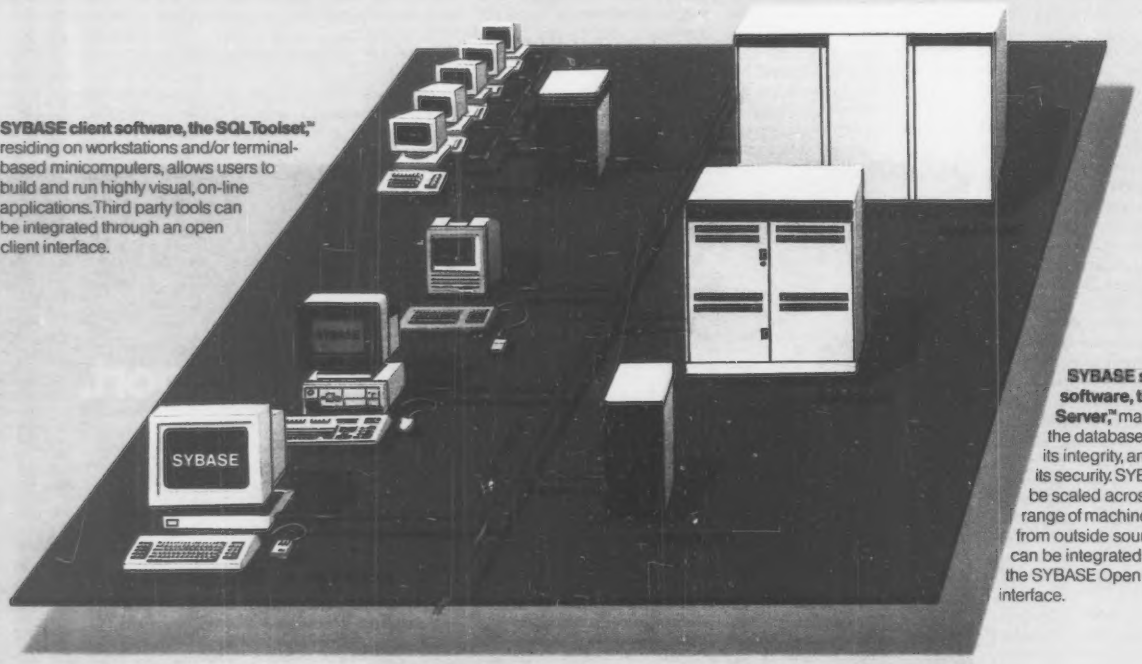

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#3	New York City	3/9	#13	Philadelphia	4/5	#23	Hartford	5/16	#30	Vancouver, BC	6/8
#4	Boston	3/14	#14	Cincinnati	4/6	#24	Seattle	5/18	#31	Portland, OR	6/13
#5	Houston	3/15	#15	Detroit	4/14	#25	Chicago	5/24	#32	Boston	6/15
#6	Chicago	3/16	#16	Denver	4/14	#26	Los Angeles	5/24	#33	Rochester	6/16
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NEW PRODUCTS — SOFTWARE

System software

A software extension for IBM's VM/XA has been announced by SDI.

Called VM Magic/XA, the system software reportedly allows any guest operating system and its application software to utilize any type of direct-access storage device. This is done without change to programs, job control language or operating system release levels, the vendor said.

Pricing ranges from $10,000 to $40,000, depending on system environment.

SDI
1700 S. El Camino Real
San Mateo, Calif. 94402
415-572-1200

Computer Associates International, Inc. has announced CA-Jars VAX, its resource-allocation and chargeback software for Digital Equipment Corp. VAX/VMS machines.

The vendor said the product runs in conjunction with CA-Jars for the IBM MVS environment and will provide combined chargeback data for MVS and VAX/VMS operating platforms as well as measure remote VAX/VMS resource usage.

Pricing for the CA-Jars VAX option ranges from $5,000 to $7,500, depending on system size and configuration, the vendor said.

CA
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Garden City, N.Y. 11530
516-227-3300

Applications packages

Autodesk, Inc. is shipping a new release of Autosolid, the company's solid-modeling system for mechanical computer-aided engineering applications.

Version 3.0 reportedly offers automatic finite-element mesh generation as well as options for defining mesh characteristics. Top-down assembly design capabilities are also provided.

Designed for personal computer and workstation environments, the package is priced at $5,000.

Autodesk
2320 Marinship Way
Sausalito, Calif. 94965
800-445-5415

Shaw Systems Associates, Inc. has announced a collection and accounting tracking software system for IBM MVS, VSE, CICS or IMS environments.

Designated CS/2000, the online system reportedly supports loans of any type — installments, commercial and lines of credit — as well as credit cards, leases, student loans and mortgages. Features include automatic identification of customers with multiple accounts and user control of screen formats. Online training is also provided.

CS/2000 is delivered under a license agreement at a cost of $95,000. Installation and training are included in the base price.

Shaw Systems Associates
Suite 600
6200 Savoy
Houston, Texas 77036
713-782-7730

Oak Software has offered a word processing program for the IBM Application System/400 minicomputer.

Called Oakword, the product reportedly includes a full-screen word-processing text editor, automatic pagination, automatic table-of-contents generation and an integrated spreadsheet math program. The company is offering Oakwood at an introductory price of $2,000, regardless of CPU model number.

Oak Software
2nd Floor
435 N. Gulf Blvd.
Indian Rocks Beach, Fla.
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813-596-0262

Unisys Corp. has announced a Unix OS-based Hotel Revenue Enhancement (HRE) system developed for the travel and hospitality industry.

Continued on page 36

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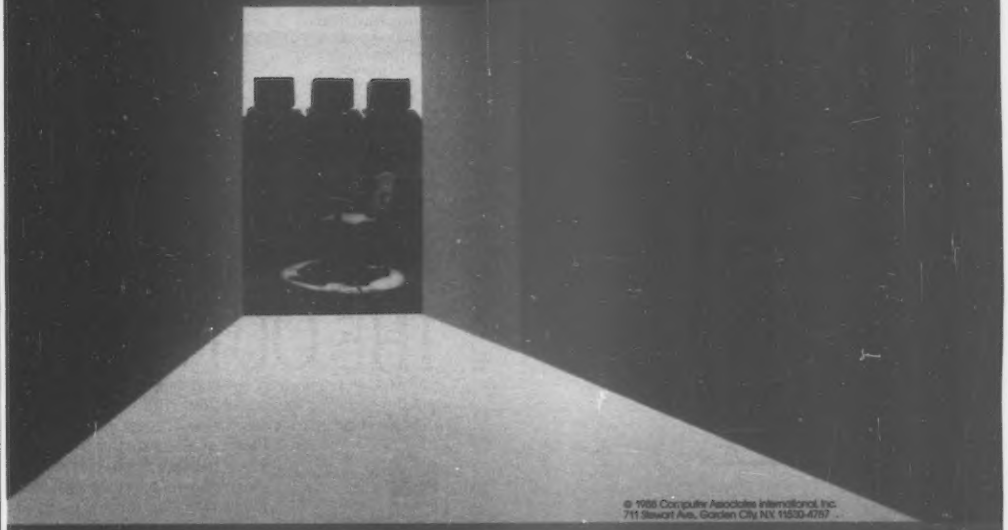

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Continued from page 35

According to the vendor, the software offers a yield-management solution for both single and multiproperty hotel environments.

It can be used at the property level, the central reservations level or in combination.

According to the vendor, the system can track regional behavior trends by market segment as well as special rate and incentive program effectiveness, with exception reports detailing market behavior that deviates from the norm.

The HRE system is priced from $15,000 to $50,000, depending on property size.

Unisys
P.O. Box 500
Blue Bell, Penn. 19424
215-542-2243

Development tools

Teradyne, Inc. has released Version 6.4 of Lasar, the organization's simulation software for the design and testing of complex, very large-scale integration devices and circuit boards.

The product has been redesigned to cut fault-simulation runtimes with its support of distributed fault analyses in networked environments, the vendor said.

Version 6.4 runs on Digital Equipment Corp. VAX/VMS systems and Sun Microsystems, Inc. Series 3 workstations. It is available free of charge to Lasar users under Teradyne's software maintenance agreement. Pricing ranges from $15,000 to $280,000, depending on DEC VAX configuration.

Teradyne
321 Harrison Ave.
Boston, Mass. 02118
617-482-2700

Artificial intelligence

An expert system tool developed to aid manufacturers and service organizations in selecting materials and processing parameters or diagnosing equipment and production problems has been announced by Battelle.

CSRL, for Conceptual Structures Representation Language, facilitates the transfer of specialized knowledge and skills from experienced engineers to less technical personnel, according to the vendor.

The product runs in both Apollo Computer, Inc. and Digital Equipment Corp. VAX/VMS environments and is priced from $4,500.

Battelle
505 King Ave.
Columbus, Ohio 43201
614-424-3747

Utilities

Data General Corp. has introduced a Wang Laboratories, Inc. Cobol conversion utility. DG/WCC will convert customer Wang VS Cobol application code sources to DG's AOS/VS Cobol. The product was designed to enable existing Cobol applications for the Wang environment to run on DG's Eclipse MV family of midrange computer systems. DG/WCC can be licensed for $14,500.

DG
3400 Computer Drive
Westboro, Mass. 01580
508-898-4051

Business Computer Design has announced another version of Documint, its automatic software documentation system. The latest release was designed specifically to run on IBM Application System/400 midrange systems and consists of 12 modules and has a 30-minute learning curve, the vendor said. It is available on a two-week acceptance basis to qualified users and is priced at $1,350.

Business Computer Design
900 Jorie Blvd.
Oak Brook, Ill. 60521
312-990-0900

A direct-access storage device (DASD) management utility is now available from Sterling Software.

Called the Space Monitor, the software tool was designed to provide the storage administrator or other MIS executives with immediate information on the current space usage in a company's DASD volumes, volume pools or total system. The product runs under IBM MVS/XA and carries an introductory price of $9,500.

Sterling
11050 White Rock Road
Rancho Cordova, Calif. 95670
916-635-5535

Business Software Technology, Inc. has released Endevor/MVS 2.5, with the Automated Configuration Manager (ACM) and Software Control Language (SCL). Release 2.5 permits MVS systems personnel to capture and maintain a complete cross-reference of an application's system components, according to the vendor.

The ACM provides automatic management of the program's physical configuration, while the SCL component allows users to define the logical relationships among software packages and to distribute them.

License fees for the product with SCL range from $47,000 to $64,500. The ACM license fee is $14,500.

BST
Westboro Executive Park
114 Turnpike Road
Westboro, Mass. 01581
508-870-1900

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NEW PRODUCTS — SYSTEMS

Processors

NCR Corp. has announced a hardware platform and an updated operating system for use in the NCR/Mednet Hospital Information System.

The NCR/Mednet 10000 was designed to replace the current NCR 9300 or NCR 9300IP processors for acute care, psychiatric and rehabilitation hospitals in the 50- to 400-bed range, the company said. The system will reportedly decrease end-of-day processing time by 25% to 30%.

The product includes hardware, NCR's SDL operating system, language and software application modules to handle patient management and financials, payroll, a master patient index and several other functions. Pricing ranges from $150,000 to $1.5 million, depending on configuration.

NCR
1700 S. Patterson Blvd.
Dayton, Ohio 45479
513-445-5000

Point 4 Data Corp. has announced a tower-style member of its Mark 386 series.

The multiuser system is based on a 20-MHz, Intel Corp. 80386 microprocessor and runs under the Unix operating system, according to the vendor. It can support as many as 32 users and can accommodate up to 16M bytes of random-access memory. A base configuration includes two serial ports, a parallel port, a monitor port and an IBM Personal Computer AT-style keyboard. Pricing starts at $10,450.

Point 4 Data
15442 Del Amo Ave.
Tustin, Calif. 92680
714-259-0777

Maintenance equipment

Electronic Service Specialists Ltd., a division of Bell Atlantic Corp., has announced a remote diagnostic service for troubleshooting and maintaining mainframe and minicomputer systems.

The Rx-Link service provides system operators with the resources necessary to isolate and correct computer malfunctions on a seven-day-a-week, 24-hour-a-day basis. The service also performs remote diagnostics on system peripherals and controllers, according to Bell Atlantic.

Electronic Service Specialists
N92 W14612 Anthony Ave.
Menomonee, Wis. 52051
414-255-4634

Electronic Service's ***Rx-Link***

Power supplies

Sola Electric, a unit of General Signal Corp., has announced microprocessor-based electronic power conditioners rated at 5, 10 and 15 kVA.

The units were designed to provide large-system users with an improved-performance electronic alternative to ferroresonant technology. The products provide protection from virtually all AC power problems except total line failure and are priced from $3,495 to $6,998.

Sola
1717 Busse Road
Elk Grove Village, Ill. 60007
312-439-2800

TLC S.E., Inc. has announced the T1200 AC power monitor and diagnostic instrument.

The handheld device can be used to determine if system problems are equipment- or power-related and will automatically check for correct electrical wiring, the vendor said. The internal monitor memory is saved for 48 hours, and the unit reportedly requires no programming or adjustments for operation. The T1200 is priced at less than $900.

TLC
332 S. Juniper
Escondido, Calif. 92025
619-432-8880

Two compact 5000VA and 3000VA continuous on-line uninterruptible power supply (UPS) systems are now available from Isoreg Corp.

The Isoguard Continuous On-Line UPS devices reportedly feature sealed, no-maintenance batteries and an automatic bidirectional bypass circuit. The 5000VA 120V 60Hz model measures 21 by 25 by 29½ in. and costs $7,595. The 3000VA version measures 10½ by 25 by 29½ in. and is priced at $5,495.

Isoreg
P.O. Box 486
410 Great Road
Littleton, Mass. 01460
508-486-9483

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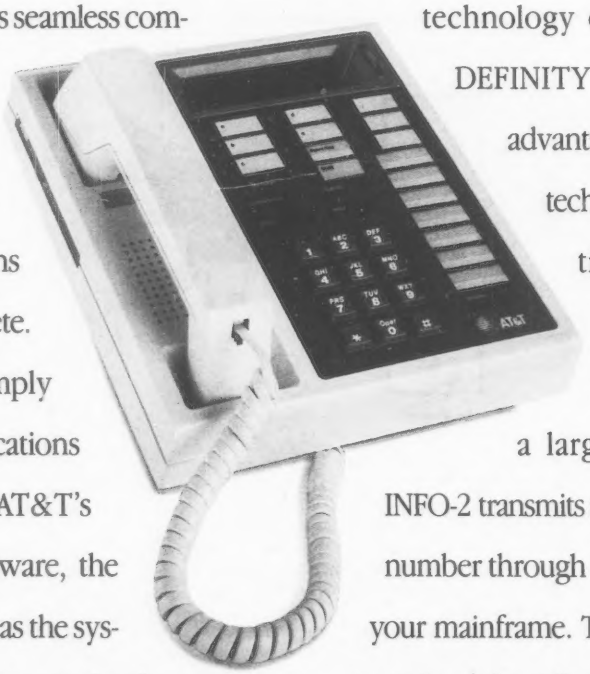
AT&T's new high-density circuit packs allow you to add more phones and computers to your system, while requiring less power and less space.



The communication system of the future is fully compatible with the telecommunication technology of the future. With DEFINITY 75/85 you can take advantage of emerging ISDN technologies like INformation FOrwarding-2. Especially helpful if your business handles a large number of calls, INFO-2 transmits a caller's 10-digit phone number through a data-only channel to your mainframe. The system allows you to retrieve, then display that caller's history on your screen as you pick up the phone.

Of course, DEFINITY 75/85 supports the features that have always made AT&T communications systems so popular. AUDIX voice

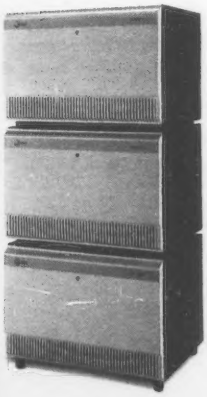
FINITY, solescence.

mail, for example, offers you twenty-four-hour access for retrieving and leaving messages.

And AT&T's System Management offers you a range of tools, including windowing capabilities, to administer and maintain DEFINITY 75/85.

All of which add up to increased business productivity.

But even as functions such as AUDIX and INFO-2 are added to the system, DEFINITY 75/85's components and operations are standardized, and as simple as ever to operate.



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AT&T
The right choice.

I/O devices

NCR Corp. has expanded its line of self-service terminal products with the introduction of the **NCR 5682** shopping terminal.

Designed for the retail industry, the unit includes a touch-video screen and IBM Video Graphics Array capabilities. Transactions are reportedly completed via magnetic cards or by touching the screen, and digitized sound is optional.

The NCR 5682 is priced between $17,000 and $22,000.

NCR
1700 S. Patterson Blvd.
Dayton, Ohio 45479
513-445-5000

General Business Technology, Inc. (GBT) has announced an 850 char./sec. matrix printer.

Designated the **5229RS**, the unit reportedly emulates the IBM 5225, and is IBM Application System/400-, System/34-, 36- and 38-compatible. The printer is attached via twin-axial cable and can be used locally or remotely.

The GBT 5229RS costs $3,295.

GBT
1891 McGaw Ave.
Irvine, Calif. 92714
714-261-1891

Icot Corp. has announced the Telestripe/Gold electronic funds transfer and point-of-sale transaction terminal.

The device reportedly provides electronic credit authorization, draft capture and debit-transfer applications. The product includes 32K bytes of battery-backed random-access memory and is programmable in an industry-standard language, the vendor said.

Available with either a Track 1 or Track 2 magnetic strip reader, the 20-key terminal is priced at $280.

ICOT
P.O. Box 5143
San Jose, Calif. 95150
408-433-3300

Talaris Systems, Inc. announced that Hewlett-Packard Co.-Graphics Language plotter emulation (HP 7475A) is now available for its Printstation product line.

The Talaris HP-GL implementation supports variable pen widths, the company said, and simulates pen colors using the halftone shading capabilities of the Printstations. The emulation comes standard on the 2492-B Printstation and is available as a $950 option on the Talaris 1590 and 1590-T Printstations.

Talaris
P.O. Box 261580
San Diego, Calif. 92126
619-587-0787

Data storage

Emulex Corp. has introduced two small computer systems interface host adapters for Digital Equipment Corp.'s Microvax 3500/3600 series computers.

Both the **UC07-III** and the **UC08-III** are microprocessor-based, quadwide SCSI-to-Q-bus host adapters and are compatible with DEC's Digital Storage Architecture implementing Mass Storage Control Protocol for magnetic or optical disk operations, according to the company.

The adapters are priced at $1,600 and $2,050, respectively.

Emulex
P.O. Box 6725
Costa Mesa, Calif. 92626
714-662-5600

A device that connects a host CPU with one or more small computer systems interface (SCSI) disk drives has been announced by Delphi Data, a division of Sparks Industries, Inc.

The Cache Box family of SCSI disk cache controllers reportedly works with any SCSI disk and was designed to increase the effective speed of the mass storage device. Pricing starts at $3,990.

Delphi Data
Suite 6C
12155 Magnolia
Riverside, Calif. 92503
714-354-2020

A solid-state, semiconductor memory system that interfaces to Hewlett-Packard Co. computers as if it were a rotating disk is now available from Imperial Technology, Inc.

The Megaram-80 Solid-State Disk incorporates a 32M-byte memory module and reportedly has maximum storage capacity of 512K bytes per system. The unit is configured in a 7-in., rack-mounted chassis and costs $700 per megabyte.

Imperial Technology
831 S. Douglas St.
El Segundo, Calif. 90245
213-536-0018

An 8mm cartridge tape subsystem with Digital Equipment Corp. HSC compatibility has been introduced by Micro Technology, Inc.

Designated the MA24, the device can operate unattended to back up as much as 2G bytes of data in approximately three hours, according to the vendor. The unit attaches directly to the HSC5X-CA card via Micro Technology's small computer system interface and is expected to be compatible with DEC's new HSC5X-DA card.

Pricing ranges from $18,000 for a single-drive configuration to $153,000 for a 16-drive configuration housed in a 60-in. cabinet.

Micro Technology
1620 Miraloma Ave.
Placentia, Calif. 92670
714-630-2481

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40 Broad Street Boston, MA 02109

MICRO BITS

Douglas Barney

The power of one

Hundreds of people toil away developing products. More hit the road and the phones in a quest for market share. Others manufacture and distribute these things. But a chief executive officer, who may actually spend very little time at the office, can truly shape a firm.

When CEOs do this, they also affect what the customer is ultimately able to buy. This is nothing new. Everyone knows that Steve Jobs and crew gave us the Macintosh, Bill Gates gaves us personal computer programming and Mitch Kapor gifted our PCs with rows and columns. In each case, these pioneers also gave PCs their excitement and the industry its pizzazz.

Now the PC industry is growing up. And you know what happens to anything that grows up? It gets boring.

For example, Apple under Steve Jobs was a lot like Lotus under Mitch Kapor. The company drank orange juice, shared massages and attempted to do fairly radical things. They also made fun of IBM and wore whatever seemed appropriate.

Continued on page 52

Workstations catch the wave

Market rides a powerful high, propelled chiefly by leaders Sun and DEC

BY MICHAEL ALEXANDER
CW STAFF

The workstation market, fueled by relatively inexpensive yet high-powered machines, is barreling along at double-digit growth rates.

According to a recent study by Dataquest, Inc., a San Jose, Calif., market research firm, the market rocketed from about $2.7 billion in sales in 1987 to $4.1 billion in 1988, an annual growth rate of 52%.

With workstations on only 20% of the engineering desktops worldwide and on less than 5% of desktops in corporate and university markets, there is plenty of room for growth, researchers said. In addition, the average price of a workstation has nosedived at a rate of 20% per year.

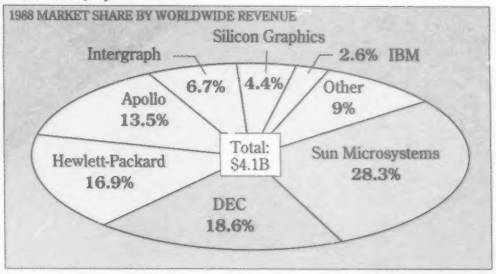
Sun Microsystems, Inc., the premier workstation company in market share, has been selling its highly popular Sun-3 product line as fast as it can make the machines. Sun has also touted its Sun-4, which now accounts for 25% of the company's revenue.

Sun is readying a workstation based on its Scalable Processor Architecture (Sparc) that will run at 8 million instructions per second (MIPS) and be priced at

Continued on page 52

Battle for second place

Sun stands apart while three vendors wrestle for the No. 2 spot in the workstation fray



SOURCE: DATAQUEST, INC.
CW CHART: JOHN YORK

The Decstation 3100: A Sun assault and more

BY JEAN S. BOZMAN
CW STAFF

PALO ALTO, Calif. — Digital Equipment Corp.'s new Decstation 3100 was intended to be a direct assault on Sun Microsystems, Inc. Sun-4 Sparc-based workstations. According to its developers, though, it is really more than that.

The system, called P-Max in DEC's Palo Alto facility, embodies an experimental and shortened design cycle for the industry's second-largest computer manufacturer. In recent interviews, key DEC developers related the story of how P-Max came to life.

The accelerated effort — which reduced development time from a year to eight months — went so well, said DEC Worksystems internal consultant Jim Billmaier, that it is being studied by other DEC engineering groups for future use. "We're doing a postpartum analysis right now," Billmaier said. "We think we've found a new way to take advantage of the resources of a large corporation while reducing our time to market."

The Decstation 3100 was, admittedly, DEC's response to losing part of its natural marketplace to its archcompetitor Sun. "We were just determined to

Continued on page 48

Atlas II engine set for entry

BY DOUGLAS BARNEY
CW STAFF

REDMOND, Wash. — Microrim, Inc. will try to carry the the personal computer database world on its shoulders when it releases Atlas II later this year.

Atlas II, set for announcement this month, is an ambitious multiuser database engine coupled with graphical front-end tools that will run on a variety of PC platforms, said Marco Hegyi, vice-president of planning and new business development at Microrim. Hegyi was hired away from Ashton-Tate Corp. to head up Microrim's cross-platform database strategy.

This strategy and the timing of product releases is remarkably similar to that of both Lotus Development Corp. and Microsoft Corp. Each of these newcomers to the PC database management system market plans to begin shipping engines and tools later this year.

Microrim, however, will de-

Continued on page 54

Inside

- Database managers twiddle thumbs waiting for servers. Page 45.
- Microsoft says OS/2 applications on the way. Page 45.
- IBM laser printer strikes at Macintosh. Page 45.

Is "the system" hampering the productivity of your CICS Programmers?

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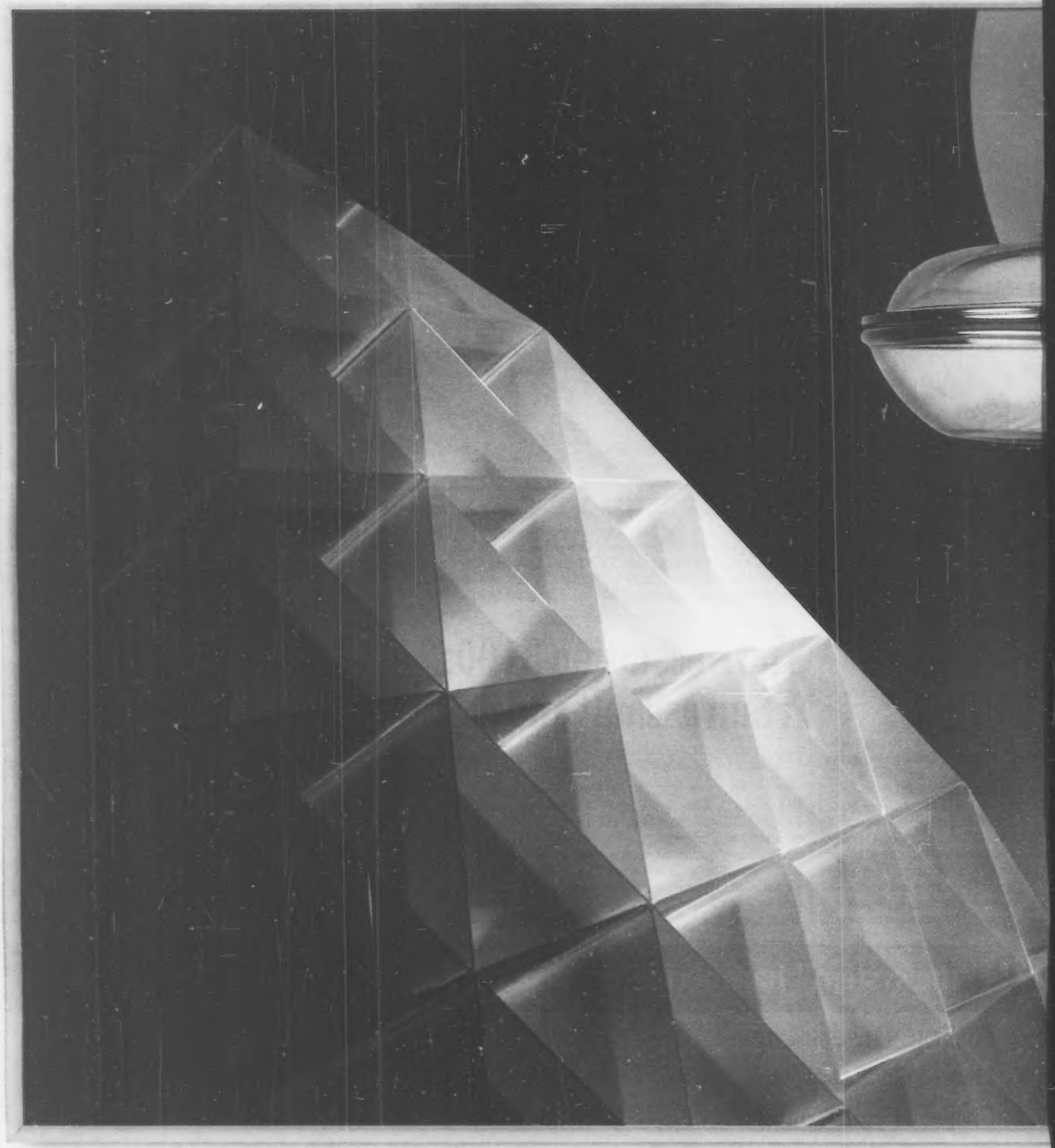

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S O L U T I O N S

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Not long ago, business wasn't too pleasant for the weather department at a local television station.

The equipment they used to analyze weather data from a satellite 22,000 miles out into space was outdated. If they were going to compete with network affiliates, they needed a more sophisticated computer system.

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Based on RISC technology, the DECstation 3100™ is the fastest desktop workstation in the world. Its 64-Kbyte cache for instructions, and another 64-Kbyte write-through cache for data, allowed the meterologists to quickly process even the most complicated data.

And its complex, high-resolution graphics gave the weather segment an on-air look that rivaled the larger stations.

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SMALL TALK

William Brandel

One man's PC is another's workstation

What is a workstation? Ever since Intel introduced the 80386 microprocessor, this question has been grappled with by every industry pundit and his brother. From their attempted answers, an industry cliche was born: "The lines that separate PCs and workstations are now blurring."

Blur no more. Beginning today, *Computerworld* is including low-end, single-user workstations in the same pool as high-powered IBM Personal Computers, compatibles and Apple machines.

The reason is simple, if not obvious: High-powered PCs and low-end workstations are now being used to perform comparable tasks. And in the computer industry, it is the tool and how it is being used that is significant, not necessarily the name on it.

This is not to say that there are no caveats that separate PC and workstation technology. But with the exception of reduced instruction set computing (RISC) technology, the hardware is already comparable in performance.

Compare, for example, a DEC Vaxstation, a Sun Microsystems Sun-3 and an IBM Personal System/2 Model 80. All have basically the same power and features but run different op-

Continued on page 56

Client/server not delivering

Users restless for products linking multiuser servers to various systems

ANALYSIS

BY DOUGLAS BARNEY
CW STAFF

The party started early last year. Database management systems vendors lined up with bold promises of seamlessly providing a variety of newly announced SQL-based database engines.

For users beset by network bottlenecks and dependent on underpowered personal computer databases, relief was in sight. The answer is known as the client/server architecture, consisting of a multiuser database server tied to client workstations that support the application and interface.

Yet a year later, these same users continue to bide their time until the servers — and the impressive array of announced clients — become available. These clients include Dbase from Ashton-Tate Corp., Borland International's Paradox, Dataease International, Inc.'s Dataease, Information Builders, Inc.'s PC/Focus, Informix Software, Inc.'s Informix, Nantucket Corp.'s Clipper and Wordtech Systems, Inc.'s DBXL . The vendors of all these products have touted the largely undelivered client/server architecture.

It still sounds great. Users could theoretically run their favorite applications while transparently accessing the power of shared relational databases sitting on inexpensive servers. But so far, all this sound and fury has signified nothing, analysts and users said.

Slow service
SQL-based servers are generally mere promises

	Ship date
Ashton-Tate/Microsoft/Sybase SQL Server	April 30, 1989
IBM OS/2 Extended Edition with Remote Data Services	Fall 1989
Oracle Server for OS/2	Later this year
Gupta Technologies SQLbase for OS/2	Currently shipping
Lotus/DBMS	None announced

CW CHART: JOHN YORK

Problem solvers

Users are anxious because the products promise to solve real-world problems by reducing network traffic, providing efficient shared databases and preserving user training in key productivity applications.

Hilly Fuchs is one user champing at the bit. The Continental Grain Co. information center director is hoping to relieve peformance problems inherent with standard file servers, which get bogged down by multiple requests. Specifically, Continental is looking to replace an IBM System/36 with a personal computer local-area network for accounting and trading applications. "The clear answer is a database server, so you don't have to pass as much data over the network," Fuchs said.

Once these products arrive, many users will still wait for the market to pick a handful of standards, particularly on the engine side. "I don't want to have applications hooked into a system that turns out not to be successful," said G. Jeffrey Knepper, director of advanced technology-tax for Touche Ross & Co. in Washington. "We're waiting for the technology to settle down."

Technical difficulties on both ends have kept the promised client/server world from appear-

Continued on page 54

Microsoft pledges OS/2 improvements for '89

BY PATRICK WAURZYNIAK
CW STAFF

REDMOND, Wash. — In an attempt to boost sluggish sales of OS/2, Microsoft Corp. promised operating system enhancements and claimed the scarcity of applications for the nearly 2-year-old system will end this year.

At its annual systems software forum late last month, Microsoft pledged to provide users with a myriad of OS/2 improvements within the next year. These enhancements ranged from more efficient use of the Intel Corp. 80386 microprocessor's memory-handling capabilities to an updated high-performance file system and the use of object-oriented programming techniques within Microsoft's OS/2 Presentation Manager graphical interface. The object orientation will eventually move to the company's lineup of programming languages.

Although Microsoft admitted the 386-specific version of OS/2 will not be available to users until 1990, the firm will ship an application developers' tool kit version of OS/2 for the 386 during the latter part of this year.

Lee Reiswig, software strategy director of IBM's Entry Systems Division, noted that today's OS/2 does not match up with the hardware it runs on. He noted that IBM's goal for its OS/2 Extended Edition was to furnish software capable of taking advantage of the 386 processor's multitasking, protected-mode operations and virtual memory-address capabilities.

"What we've discovered is we have a long way to go to get the system software capable of exploiting the capabilities of today's hardware," Reiswig said. "Today, we're still lagging a bit in trying to catch up with the hardware."

Microsoft's planned enhancements for OS/2 will be binary-compatible with earlier OS/2 versions, thus requiring no rewriting of any applications, according to Microsoft. The vendor plans to eventually add elements such as an entirely new file system capable of storing file names with expanded names and attributes.

Adrian King, general manager of Microsoft's OS/2 product group, said the performance of the improved OS/2 will be 100% better than earlier OS/2 releases, strictly through use of the new file system. He noted that such performance gains will also carry over to DOS applications running in OS/2's compatibility box.

Unlike the file system currently used with MS-DOS, which limits file names to eight characters, the new OS/2 file system

Continued on page 56

IBM tunes up for publishing race

BY JULIE PITTA
CW STAFF

BOULDER, Colo. — While Apple Computer, Inc. chases IBM in corporate personal computing environments, it holds the lead on its nemesis in the desktop publishing market.

IBM, finding itself in the unfamiliar position of lagging behind a rival, has responded with a new laser printer that can be connected to Apple's Macintosh PCs and networks using Appletalk connectors. The printer uses Adobe Systems, Inc.'s Postscript page description language.

Bryan H. Standley, market support representative of IBM's Publishing Support Center headquartered here, conceded that IBM is playing catch-up with both Apple and Hewlett-Packard Co. in the desktop publishing race. "It has been their market traditionally," Standley said. "Apple has been a pioneer that brought publishing to the desktop. They deserve credit for such an accomplishment."

IBM got off to a relatively late start in desktop publishing, introducing its first desktop laser printer in April 1987. The debut of that printer coincided with the unveiling of IBM's Personal System/2 line. "It was decided to wait until the new, more powerful line of processors came along," Standley explained.

While IBM readied the PS/2, Apple was selling desktop publishing systems to IBM's corporate customers. Many MIS executives who have traditionally purchased IBM Personal Computers or compatibles have said that desktop publishing offered them their first experience with the Macintosh. Impressed with the Mac's graphical user interface, a number of these MIS managers began purchasing them for other applications.

Not enticing

IBM's first desktop publishing system offered little to dissuade users from the Mac. Synda Matthews, an electronic publishing group industry analyst at Dataquest, Inc. in San Jose, Calif., said IBM's first printer was a disappointment.

The printer's controller was in the PC, not the printer itself, so that it could not be shared, Matthews said. "Postscript printers are too expensive for many people to be able to justify single use," she explained. Also, font-handling was more difficult with the IBM printer than with Apple's Laserwriter.

"They realized they have to do something," Matthews said. "They recognized that IBMs and Macs were being shared in the same environment."

With its latest printer, IBM has resolved some initial problems. The controller resides in the printer, font-handling has been improved, and it will "plug-and-play" with other desktop systems such as the Mac.

At a price of $4,999 for a resolution of 300 dot/in. and a print speed of 6 page/min, it is competitive with other printers on the market. It contains a controller card with a 16.7-MHz Motorola, Inc. 68000 microprocessor and 2M bytes of random-access memory, allowing it to plug-and-play with the Mac.

It can also be used with any PS/2, IBM PC XT or AT and compatibles.

Standley said IBM is not ready to concede the desktop publishing market to rivals. "IBM is very interested in desktop publishing," he maintained. "We'd like to be the leader. This printer represents an awareness that customers move IBM equipment around in a mixed environment."

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Decstation 3100

CONTINUED FROM PAGE 41

win," said Joseph E. DiNucci, U.S. manager of DEC's Worksystems group. "We had done a good job of capturing the VMS marketplace, but too many times we had lost business because we didn't offer a Unix workstation."

DEC had been selling the Vaxstation 2, a highly successful engineering/scientific workstation, since 1985. Sales of the Vaxstation series alone made DEC the No. 2 supplier of all workstations with a 23% market share, industry analysts said. In fact, DEC is second only to Sun itself. But DEC found it was losing business even in its own accounts to the emerging stable of reduced instruction set computing-based (RISC) Unix workstations from Sun and others.

Industry analysts say DEC had the right instincts in responding to the Sun challenge. "If you are an all-VMS shop, buying Vaxstations is all part of the deal," said Carl Flock, director of Dataquest, Inc.'s technical computer service. "DEC is trying to break out of that. They have the idea that distributed processing has become so popular that they can't stay with a proprietary operating system in the long run."

DEC Worksystems' DiNucci

DEC made the decision in July 1987 to bring a Unix workstation to market in less than a year. But by spring, DEC had scrapped its original plans to develop a RISC-based system internally at DEC facilities in Seattle. That six-year project had been code-named Titan. Ironically, the Palo Alto designers used some of the 30 Titan systems to design the Decstation 3100.

After deciding to buy RISC technology from outside sources, DEC elected to build on the Mips Computer Systems, Inc. R2000 RISC chip, which was already shipping in quantity. "The R2000 had been out for a year by the spring of 1988," DiNucci said. "It was real, and it had very sophisticated RISC compilers, which delivered high performance."

A small design team — principal engineer Michael Nielsen and another developer — began designing the single-board machine within a 4-in.-high processor cabinet. One decision came right away: The byte-order should be made compatible with that of the VAX series. That move also ensured compatibility with the byte-order of millions of MS-DOS-based micros so MS-DOS-based systems could exchange files with the P-Max system. But this meant that the byte-order is reversed from that of Mips' workstations based on the same R2000 engine.

> "WE HAD done a good job of capturing the VMS marketplace, but too many times we had lost business because we didn't offer a Unix workstation."
>
> JOSEPH DiNUCCI
> DEC

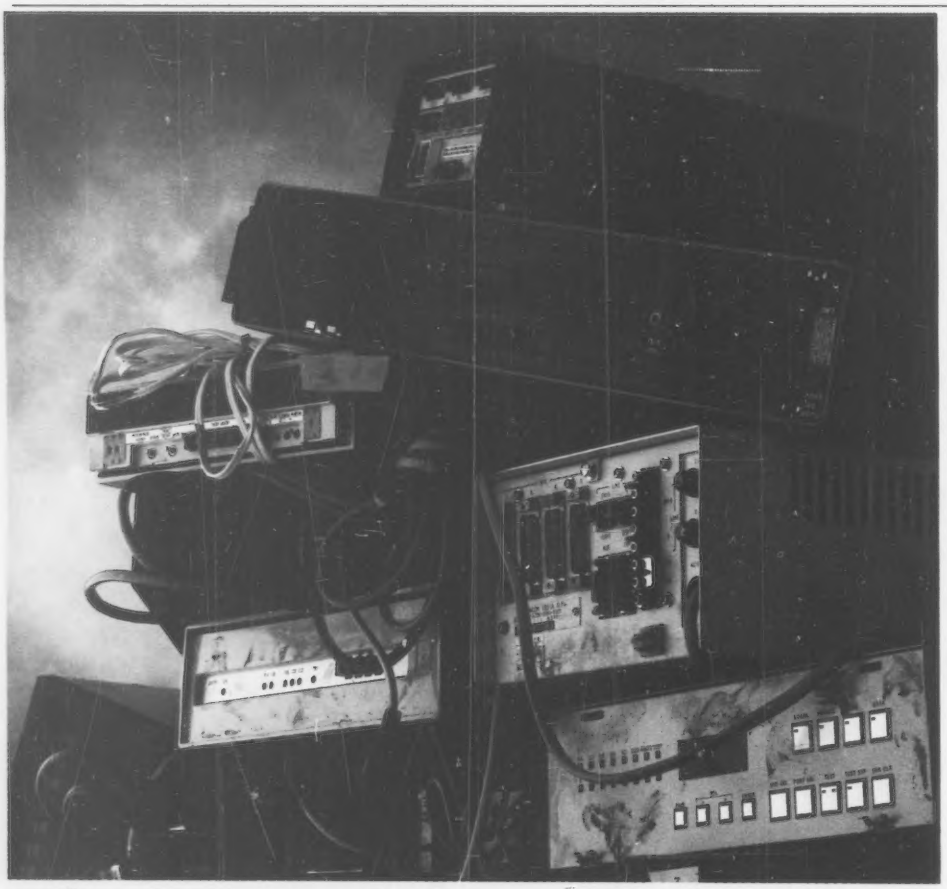
Another design consideration was that the Decstation 3100 CPU be directly linked to its I/O devices without benefit of a backplane, thus decreasing I/O bottlenecks. Finally, a single-processor board would accept either a color video chip or a monochrome chip, allowing for one-step chip upgrades.

By July 1988, DEC reassigned 15 software engineers from its New Hampshire offices to the DEC development lab here for the duration. The move was part of an effort to cut the planned development time by four months.

"Most development efforts at DEC take about two years," DiNucci said. "The schedule was to be from April [1988] to April [1989], but by June, they said we should have it done by January." The Decstation 3100 was announced Jan. 10, along with a wide range of engineering/workstation hardware and software.

The Decstation is not to be viewed as a point-product, DEC said. Nielsen and others are now working on expanding the $11,000 workstation, which runs at 12 million to 14 million instructions per second, into an entire product family. Users can expect variations that have higher and lower performance levels, DEC designers said. The next generation of Decstations, they indicated, might be built on the Mips R3000 chip, which is due out soon. The R3000 is being delivered now to computer vendors in sample quantities.

Eventually, an entire range of upward-compatible products could be built on the Mips CPU, said David Korus, an analyst at Kidder, Peabody & Co. in New York. "What Digital can do, from the low end to the high end, is deliver a common [operating system] and a common user interface, with one common set of applications," he said. And that would be analogous to DEC's own VMS strategy for the VAX.



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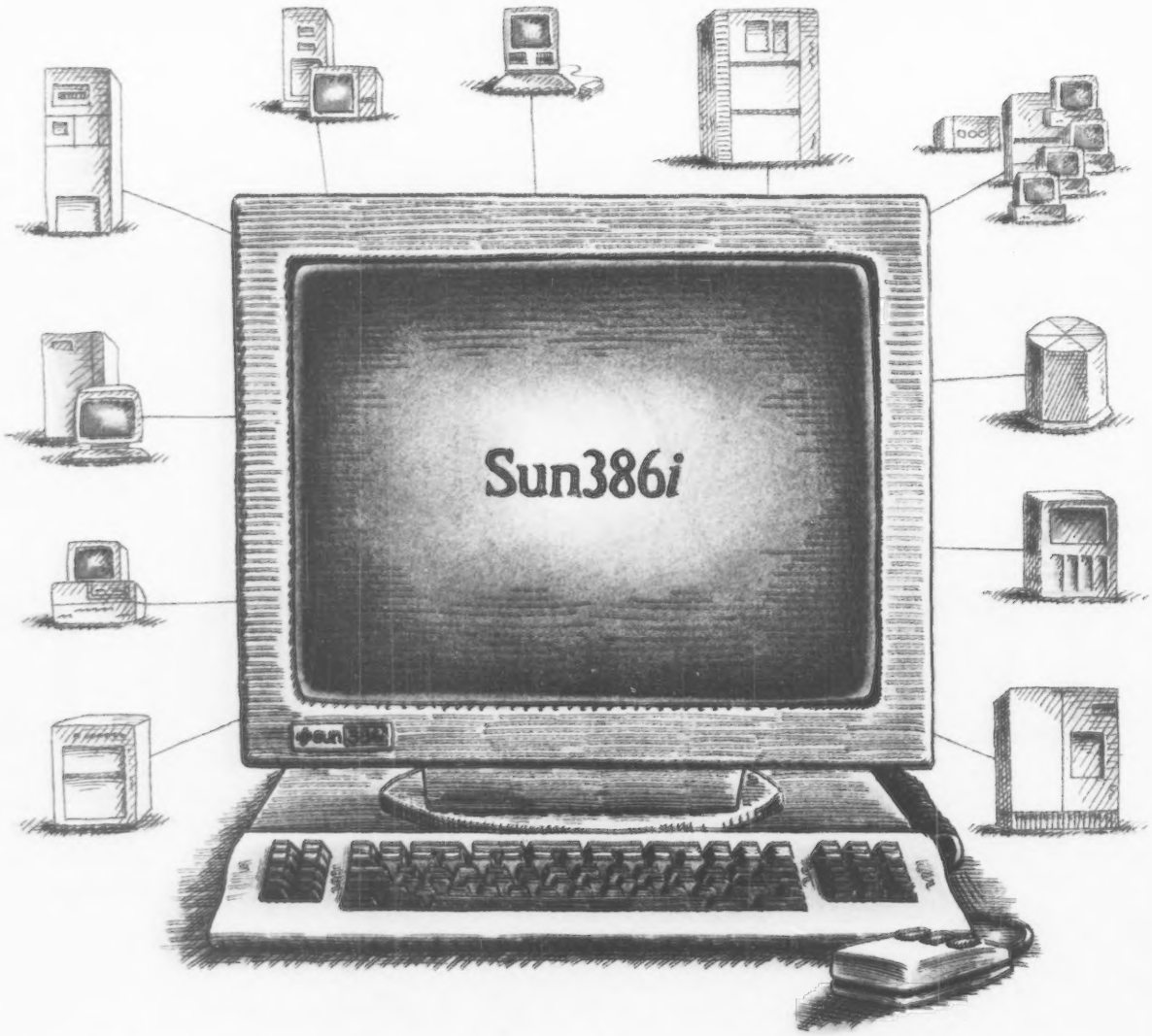

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Barney

CONTINUED FROM PAGE 41

Under John Sculley, the company is all marketing. Its ads portray MIS directors talking about integration. Sculley is a bit like current Lotus Chairman Jim Manzi, but instead of talking about IBM mainframes, Sculley talks about DEC VAXs. He also dresses a bit preppy. Under Sculley, the products are no longer radical, but they do communicate quite effectively with other computers.

When you think of Borland, do you still think of a company a bit on the crazy side, with a whole lot of brashness thrown in? That is because its founder, Philippe Kahn, is a bit on the crazy side with a whole lot of brashness thrown in.

But this company is now beginning to change its image. That is because another personality, businessman Ben Rosen, is now a key member of the Borland board. Prices are going up, the company is a bit quieter, and the products are becoming more mainstream. Instead of talking togas, Borland now talks SQL. Fortunately, SQL is more important to MIS than silly ancient garments.

Lotus under Mitch Kapor was viewed as creative, iconoclastic, kind of kooky and a tad arrogant. Kapor wore Hawaiian shirts, talked in metaphors and was interested in leading-edge software concepts such as artificial intelligence.

Under Jim Manzi, Lotus is a business. Now Lotus employees wear dark business suits and talk about the Fortune 1,000. The products ultimately make more sense; they just take longer to complete.

There is one glaring exception to the changing-of-the-guard rule. Microsoft has had no change in identity because it has not changed its leader. Bill Gates has been running the show for the past, what, 15 years or so? And Gates continues to set the tone. To heck with marketing.

Microsoft seems to care about one thing and one thing only: great lines of code. Gates himself is still a code freak. Last time I checked, he was still carting around high-powered portables while traveling to review products and check up on his code writers.

Gates' strange charisma pervades the company. Here's an experiment. Meet someone who has worked at Microsoft for at least a year. Then think of Gates. See the similarity? The employee will most likely have taken on some Gatesian mannerisms. Terms such as random — meaning off-base — and bandwidth sprinkle all the conversations. They sound like Bill, and in some cases they even look like him.

Gates doesn't talk much about business so much. He talks about apps, SQL and DDE. His employees do likewise. The Microsoft environment is like a nonstop acronym lovefest.

The larger, older and more boring the company, the less likely it is that one leader can set the tone. Think of IBM. Its image never changes with its leader. That image is cast in concrete. With the way companies such as Lotus and Apple are going, the same will be true for them as well.

With the new breed of PC executives in place, total boredom is about to take over the industry. Heck — at least the products will work with mainframes.

Barney is a *Computerworld* senior editor, PCs & workstations.

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Workstations

CONTINUED FROM PAGE 41

about $7,000. The company is also readying a high-end Sparc-based system offering 20 MIPS for about $30,000 and a Motorola, Inc. 68030-based workstation that will sell for $6,000.

"Burdened with three hardware platforms and multiple accelerator options, Sun's product release cycle is approaching a gargantuan level of complexity," said analyst Lisa Thorell, who co-authored Dataquest's study with Kathleen Hurley. "The question is not whether Sun can meet the technical challenges of 1989 but whether the company can learn to manage its organization faster than Digital and Hewlett-Packard can introduce leading-edge workstations."

Second-ranked Digital Equipment Corp. is pushing hard to take over the top position. The company upped its market share 1.8% in 1988, largely at the expense of IBM and Apollo Computer, Inc., the researchers said.

DEC's robust growth in 1988 principally reflected the success of its Vaxstation 2000 workstation line. The company's workstation sales in 1988 were driven by the company's greatest strength: the installed base of VMS users. But DEC finally made strategic moves for an assault on the workstation market. The company introduced the competitively priced Vaxstation 3100 (PVAX) workstation, which will run under VMS and Ultrix, and a high-end reduced instruction set computing (RISC) workstation based on Mips Computer Systems, Inc. technology.

Hewlett-Packard Co. was the market's surprise last year, introducing several workstations ranging from the HP 340M to the high-end RISC-based HP 935 Turbo SRX workstation. HP, a relative newcomer to the technical workstation market, is quickly closing the gap between it and DEC, Dataquest noted.

Apollo, once the No. 2 workstation supplier, fell to the No. 4 spot in 1988, relying too heavily on its key accounts for its revenue, Dataquest said.

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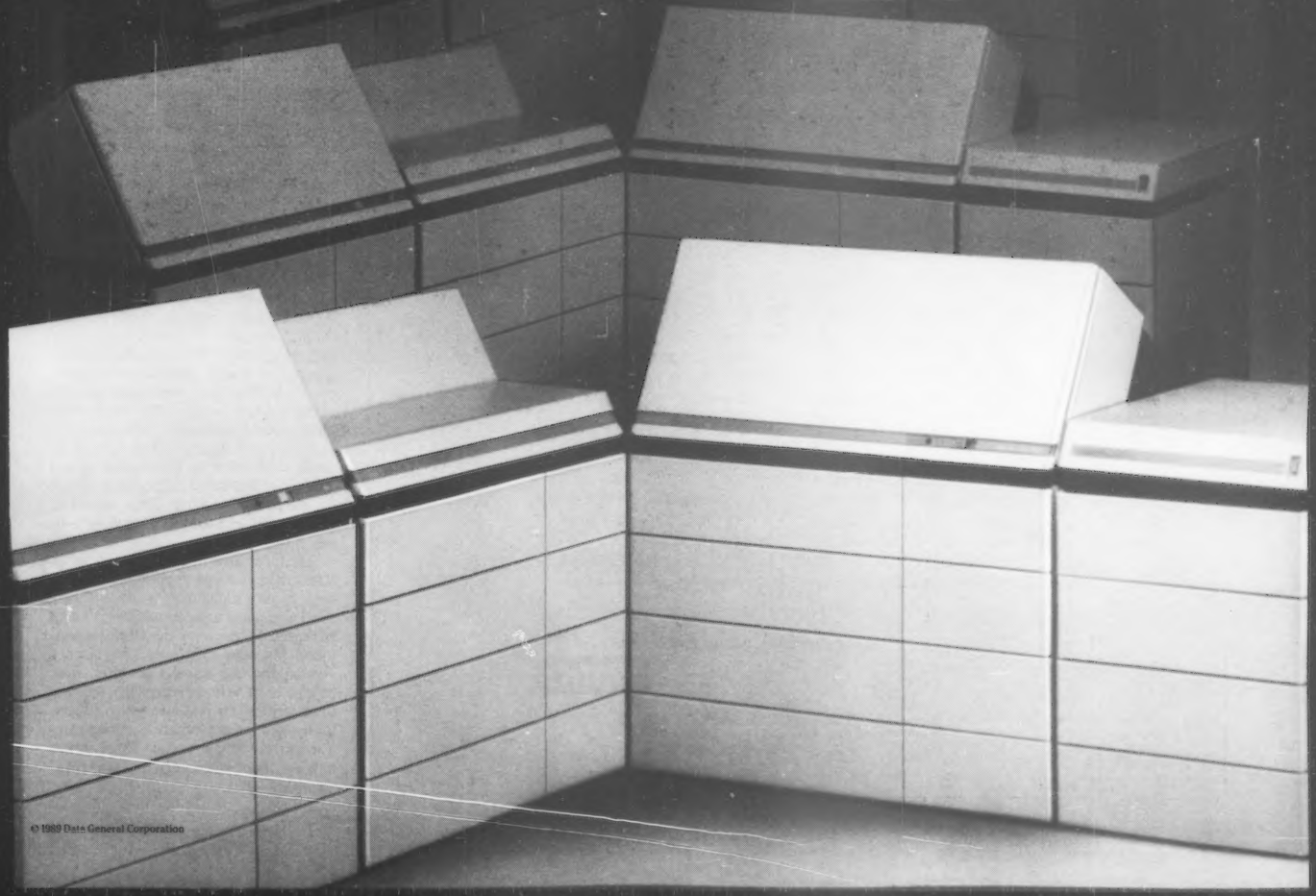

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Client/server

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ing in force. While a few products are currently shipping, the bulk will not begin to dribble out until spring, and there is no telling when all the promises will be fulfilled.

A big part of the problem is that many vendors are trying to blend two very different architectures. The SQL-based engines use so-called set processing, which manipulates data in entire tables and uses the specific syntax of the SQL language for data access and manipulation.

Most of today's PC DBMS products, on the other hand, are not set-processing-oriented. Instead, these packages work with data in a one-record-at-a-time fashion and have not been built from the beginning with SQL in mind. Blending the two worlds calls for kludgy and slow translations to the SQL language.

In most cases, the vendors have played it cagey, releasing only the vaguest of ship dates. For those vendors that have been more specific, missed ship dates have been the norm. For instance, PC DBMS leader Ashton-Tate pledged to deliver Dbase IV as a front end to the Ashton-Tate/Microsoft/Sybase SQL Server by the end of last year. The new date? Spring. On top of all this was Lotus Development Corp.'s announcement of a graphical version of its 1-2-3 and a series of Lotus DBMS tools. These have not shipped either.

Of all these, only tiny Wordtech Systems has shipped any sort of front end to any sort of back end. Wordtech sells a Dbase compiler that works with a variety of Oracle Corp. databases.

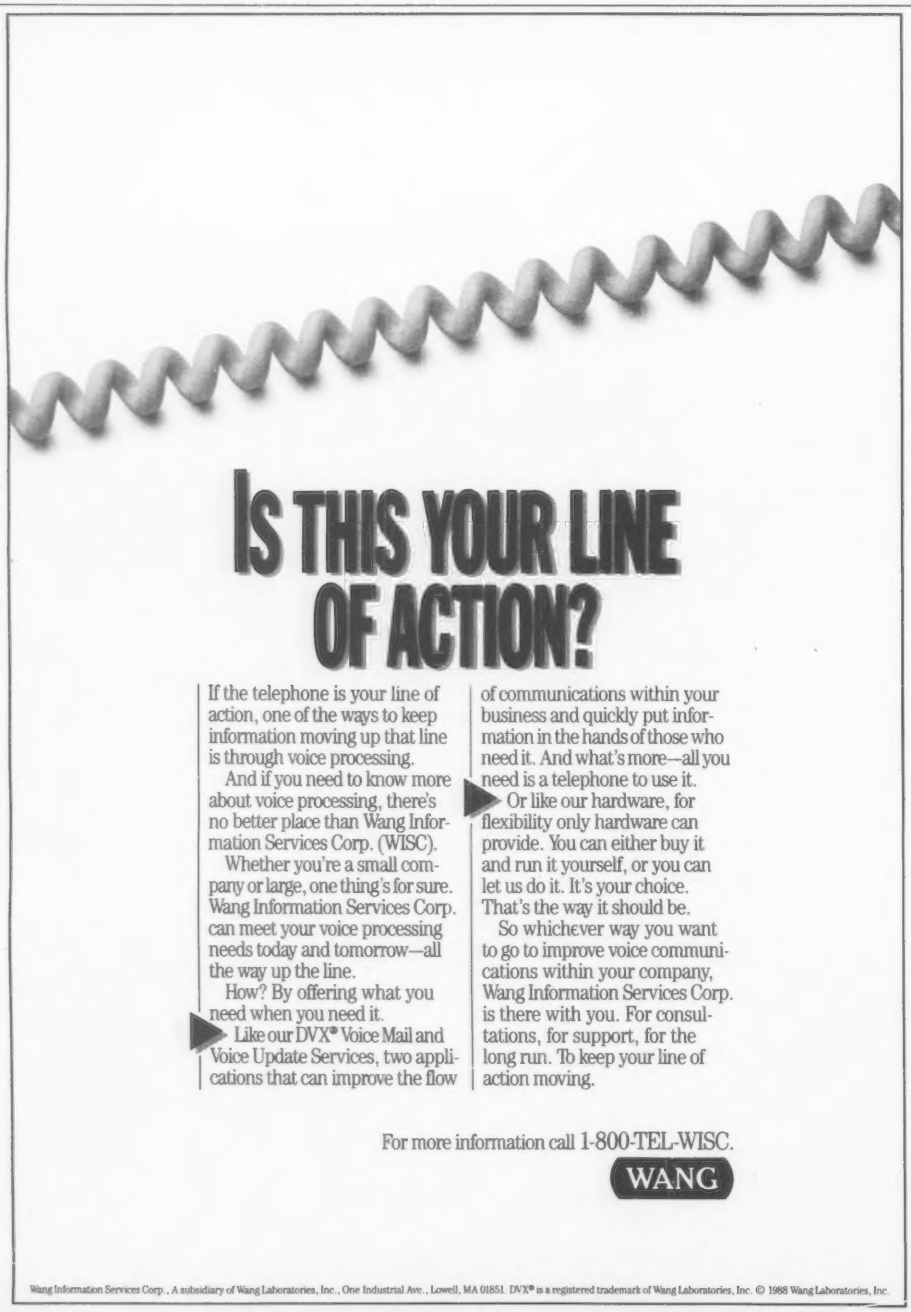
All these products are supposed to move over to an equally high-profile array of SQL back ends, including SQL Server, OS/2 Extended Edition, Oracle and SQLbase. But SQL Server, originally scheduled for delivery in the second half of last year, is delayed until late April; IBM's OS/2 Extended Edition is still a memory-hogging single-user application; and Oracle will only say that its OS/2 Server will ship this year. Only Gupta Technologies, Inc. is shipping an OS/2 server product, but without the marketing clout of the big boys, Gupta has yet to catch fire.

Another problem sure to confront users is rewriting of code. In some cases, applications will run unchanged against the server. But in many others, programmers have a chore awaiting them.

Information Builders had to add a facility to translate Focus code into SQL to access data on a server. The product, which is "near beta," should ship for OS/2 Extended Edition this June, said Kevin Quinn, product manager for PC/Focus for OS/2. "The work we were doing was to talk SQL. Focus is not a relational SQL database. That is what took us so long," Quinn said.

Focus applications, if written for a hierarchical style of database, will need recoding, Quinn said.

The lesson in all this is twofold, analysts say. Do not believe everything you hear. And perhaps the best front ends will be the ones built from scratch by firms such as Microsoft Corp. and Lotus. Like the simpler ports, you will still have to wait for these to ship.



Atlas II

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part from most of its competitors in one important way. While most software firms OEM the database engines from more experienced vendors and develop the tools, Microrim plans to build both.

At the core of the engine will be SQL, a terse but efficient way of accessing and manipulating data developed by IBM more than a decade ago. Microrim, however, stumbled in its first attempt to integrate SQL into its R:Base software last year. The firm created an incomplete implementation of the language and touched off a virulent reaction among SQL aficionados.

Microrim pledges to do it right with its new engine, set for release later this year. This system will initially run under OS/2 on high-end Intel Corp.-based PCs. Later, the SQL-based engine will be ported to other architectures, including workstations from Sun Microsystems, Inc., Digital Equipment Corp. VAX minicomputers and, ultimately, IBM mainframes, Hegyi said.

Can we talk?

The engine will reportedly be able to communicate with other database systems through the use of a global data dictionary, Hegyi said. "Within the dictionary is a map of where your information is stored. We then have controllers that are connected to our engine that will directly talk to other engines using SQL," he said.

Intially, the engine will be able to directly read and write Dbase, R:Base and IBM OS/2 Extended Edition files. Later on, support for Oracle Corp. software, DEC's RDB, and IBM's DB2 will be added.

The firm also hopes to leverage its strength in end-user application development by providing tools for the IBM Personal Computer and compatibles running Microsoft Windows or the OS/2 Presentation Manager. Microrim also plans a version for the Apple Computer, Inc. Macintosh. The firm pledged that applications written for one interface will run, unchanged, on any other. In either case, Microrim is hoping to help usher in the new era of object-oriented database management.

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erating systems. These are just separate roads to a common destination. It is conceivable that with the upcoming so-called 486 processor on its way from Intel and the advent of bus mastering, PCs will soon outperform these workstations.

Look at PCs today. It is difficult to find even an 80286-based machine these days that is not offered with a mouse — once the telling sign of workstations. PC screens and graphics technology have improved, and graphical user interfaces based on DOS and OS/2 now battle offerings from the Unix environment — another former domain of workstations.

Sun, a workstation vendor, sells a 386-based machine that runs both DOS and Unix. Apple, a PC vendor, markets a workstation that competes against the best of them. Phoenix Technologies, which became prominent as a DOS BIOS code vendor, is now offering Unix BIOS code along with AT&T's. The interface being offered by the Open Software Foundation is the Hewlett-Packard/Microsoft/DEC hybrid, which mixes and matches PC and Unix technology. It will compete against Presentation Manager, a PC user interface, and Decwindows, a workstation windowing environment. Where the technology comes from no longer presupposes its application.

This is not good news for us pigeonholers. As industry observers, we like to simplify things for reasons of understanding and communications. As technology and its implementation changes, we must change our perceptions as well.

So bid adieu to those blurry days of yore. It is time to focus on the market/technology osmosis that has taken place and how we are using it. A workstation is simply a single-user machine with enough processing power and memory to perform semicomplex calculations and somewhat dazzling graphics. But let me be the first to warn you: The lines between low-end workstations and RISC-based machines are beginning to blur.

Open desktop coup. Last week at Uniforum 1989, five companies got together to announce an alternative proposed industry standard to rival the leader in the industry. No, it's not the Extended Industry Standard Architecture consortium — it's the Open Desktop Five. DEC, Tandy, Locus, Relational Technology and The Santa Cruz Operation have ganged up to deliver a cost-effective, fully loaded alternative to Sun's 386I.

But a significant factor worth noting is that DEC is now showing marketing savvy for its desktop systems. In this latest effort, DEC receives no royalties for contributing XUI — no small token gesture, considering DEC has made a larger investment in Decwindows than any other software undertaking in its history.

But by reaping no capital gains, DEC is effectively achieving two major goals in one fell swoop. First, by contributing — not selling — XUI as part of the deal, an economy of scale is attained for the package that blows away anything Sun currently offers. And if the package takes off, it increases momentum for XUI as an interface standard — not a bad idea.

A pretty good guy. Two weeks ago, IBM unveiled its latest weapon in its arsenal of low-end system strategies. This time it was a polished but straight-talking executive from Chicago named James Cannavino. Since Cannavino has taken the helm, IBM's Entry Systems Division (ESD) employees are talking a whole different game. Retailers and distributors matter, customers matter, and it's a kinder, gentler IBM.

IBM can now afford to do this, as former ESD President William Lowe took almost all the heat as he established the beachhead for the controversial Micro Channel. But that was then. Customers are looking to Cannavino for compelling reasons to buy and use Micro Channel, how it will work with OS/2 and how it fits into IBM's Systems Application Architecture. This is no easy sell. But if Cannavino and IBM's entry systems folks don't draw a picture for customers by the time Comdex Spring '89 passes, this honeymoon will be over quicker than you can say John Tower.

Brandel is a *Computerworld* senior writer.

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Mainframe users will especially appreciate SPF/PC's familiar commands, fast PC processing, and micro-to-mainframe file portability.

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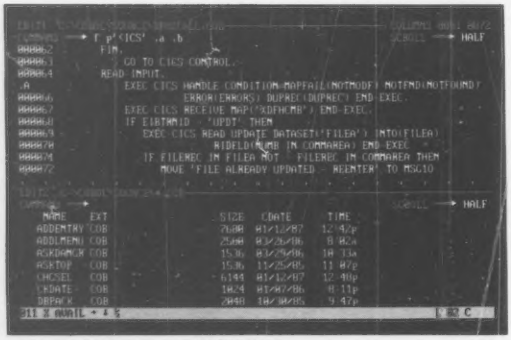

Real work in progress on a COBOL file.

A few other SPF/PC enhancements:

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- picture strings
- hexadecimal editing
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SPF/PC runs under DOS on the IBM PC, XT, AT, PS/2 and all true compatibles; and in DOS emulation under OS/2. Native OS/2 support is in development.

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Command Technology Corporation

1900 Mountain Boulevard, Oakland, California 94611 Telephone: (415) 339-3530 FAX:(415)339-3883

Microsoft pledges

CONTINUED FROM PAGE 45

will support longer file names and extended file attributes such as author name and revision dates of a document.

The release will also include performance improvements in disk caching and faster file access while adding support of much larger disk volumes, including standardized access to different media such as those used in compact disk/read-only memory drives, according to Microsoft.

In addition, Microsoft's enhancements add full support of the 386 processor's ability to access the 32-bit address space.

The updated OS/2 will also allow end users to run multiple DOS sessions concurrently and switch between them in a fashion similar to Microsoft's Windows/386 release. Microsoft said OS/2 for the 386 will use paging of memory instead of swapping segments of memory. The system will be able to simultaneously run several 640K-byte DOS applications in virtual-8086 mode within its 16M-byte address space — unlike OS/2 Version 1.1, which ran only one "compatibility box" in real mode.

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* The Wall Street Journal (1987) — "Survey of the Information Processing Marketplace".
* The Adams Co. (1988) — "Information Processing Management Study."
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THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY
January 16, 1989 · Vol. XXIII · No. 2 · 118 Pages · $2/Copy · $44/Year

COMPUTERWORLD

INSIDE
Product Spotlight — MIS dabbles in

Court: States may tax net traffic

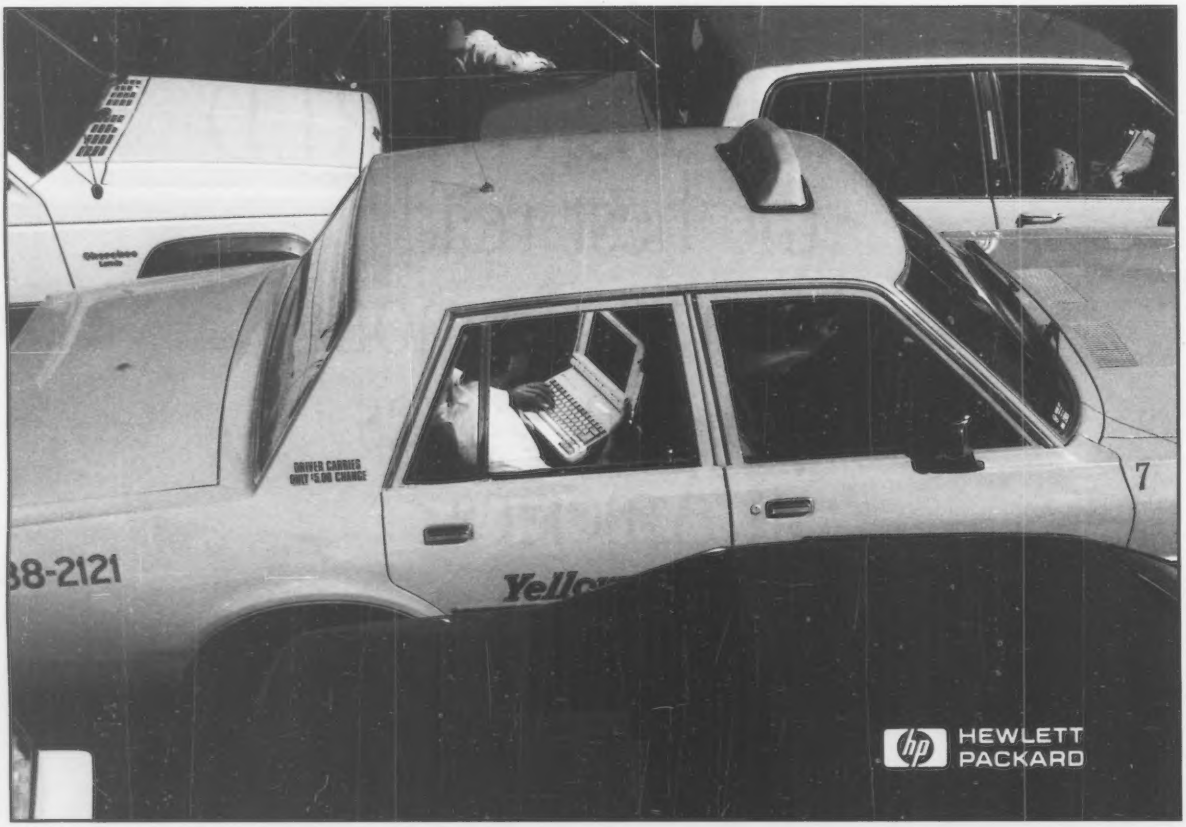
BY MITCH BETTS
CW STAFF

ume transaction networks such as airline reservation systems, may wind up moving their data centers to "tax haven" states

"This will definitely affect site-location decisions," said Kenneth L. Phillips, vice-president of telecommunications policy, at Citicorp in New York and chairman of the Committee of

On SQL Server's test trail

S O L U T I O N S



Hewlett-Packard Vectras From Hamilton/Avnet Computer: For Those Who Have to Take the Office With Them

A marketing executive who spent much of his time on the road recently called Hamilton/Avnet Computer with a problem. His demanding travel schedule not only robbed him of many productive hours, but also took its toll on his staff's productivity.

For this executive on the go, Hamilton/Avnet Computer recommended Hewlett-Packard's LS/12 Laptop PC. Combining the performance of a desktop, with the flexibility of a portable, the LS/12 features a 16-bit microprocessor, powerful 12MHz operation and PC/AT compatibility. And with its optional, high-speed, internal modem, information can be sent from anywhere.

Hamilton/Avnet Computer equipped the home office with the Hewlett-Packard Vectra RS/25C PC. With its state-of-the-art cache memory architecture, high-speed disk drives and superbly designed floor-mount package, the RS/25C keeps the home office in the fast lane.

Hamilton/Avnet Computer is driven to serve you. For the Hamilton/Avnet Computer sales office nearest you, call toll free: **1-800-426-7999**.

HAMILTON/AVNET
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NEW PRODUCTS

Systems

Advanced Logic Research, Inc. has introduced a series of Intel Corp. 80386-based 16-MHz, 20-MHz and 25-MHz small-footprint computers.

Dubbed the Z-Series, both the 20-MHz and 25-MHz configurations offer 64K bytes of static random-access memory cache. All three systems include a standard IBM Video Graphics Array controller, one 1.44M byte 3½-in. floppy drive and up to 120M bytes of hard disk storage.

The series is scheduled to begin shipments this month, with prices starting at $2,695.

Advanced Logic Research
9401 Jeronimo
Irvine, Calif. 92718
714-581-6770

AST Research, Inc. has expanded its line of personal computers with the addition of two desktop systems.

The entry-level Bravo/286 is based on an Intel Corp. 80286 processor. The 8-MHz machine reportedly includes 512K bytes of random-access memory and four expansion slots. Bravo/286 is priced from $1,095.

The 32-bit Premium 386/16 is based

AST Research's *Bravo/286*

on an Intel 80386, 16MHz processor and provides high-speed cache architecture for 80386-specific applications, the vendor said. Pricing ranges from $3,295 to $4,395.

AST Research
2121 Alton Ave.
Irvine, Calif. 92714
714-863-1333

Toshiba America, Inc. has announced the T5200 Corporate Workstation.

The 20MHz, Intel Corp. 80386-based machine runs Toshiba's T/PIX implementation of AT&T's Unix System V/386 as well as Interactive Systems Corp.'s 386/IX 2.0 and The Santa Cruz Operation's SCO XENIX 386. Each T5200 is also shipped with MS-DOS at no extra charge, the vendor said.

Standard features reportedly include 2M bytes of 32-bit memory, 32K bytes cache memory, a 100M-byte hard disk drive and a 1.44M-byte diskette drive with IBM Personal System/2 compatibility. The T5200 Corporate Workstation is priced from $10,999.

Toshiba America
Advanced Systems Division
9470 Irvine Blvd.
Irvine, Calif. 92718
714-583-3071

Development tools

Copia International Ltd. has announced a set of programmer tools that can reportedly create, read, write or update Borland International Paradox or Ashton-Tate Corp. Dbase IV files.

Called Accsys, the Borland version of the software program is priced at $395 for binary only and $795 for both binary and source code. According to the vendor, the Ashton-Tate version is scheduled for availability this month.

Copia
1964 Richton Drive
Wheaton, Ill. 60187
312-665-9830

Neuron Data, Inc. has announced Version 3.0 of AIvision, its icon-based desktop accessory tool.

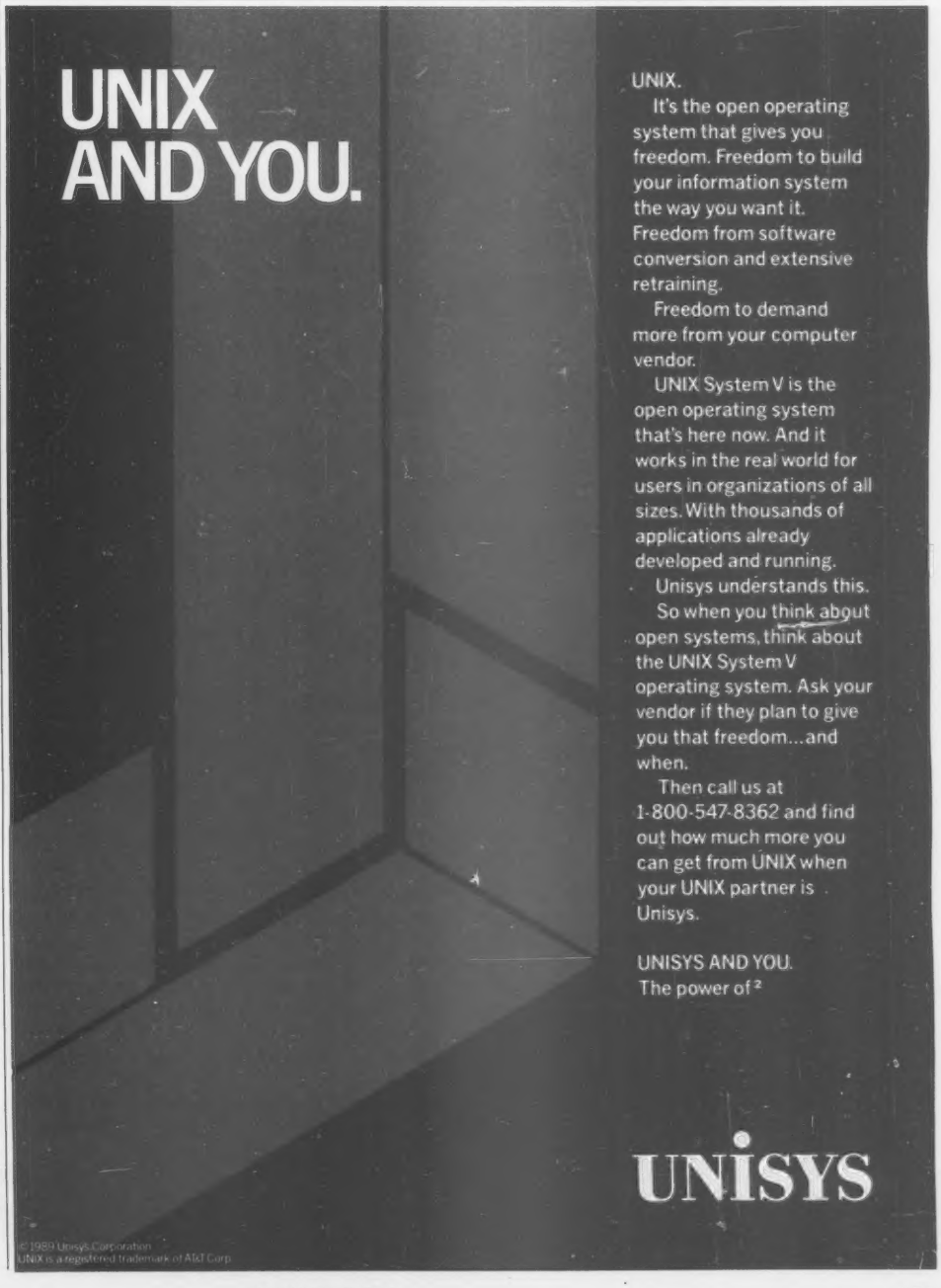
The product was reportedly designed for creating interactive, graphical interfaces to applications generation by Neuron's Nexpert Object C-based expert system shell. It provides full color and large screen support, and the lastest release is said to offer a faster development environment. AIvision is priced at $500, and current users may upgrade to Version 3.0 for $100.

Neuron Data
444 High St.
Palo Alto, Calif 94301
415-321-4488

Exim Services of N.A., Inc. has announced the latest addition to its Exim Tool kit family of products.

Hypertext Reverence Facility (HRF) is an on-line reference guide for programmers working in the Microsoft Corp. Quickbasic 4.5 environment. The product contains technical and user information, as well as an error dictionary and Help screen facilities. HRF is priced at $49.95.

Exim Services
P.O. Box 5417
Clinton, N.J. 08809
201-735-7640



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COMPUTER POWER GROUP

Software applications packages

A contact management package designed specifically for field sales personnel is now available from Eighty/20 Software, the company said.

Called Expeed, the product reportedly tracks schedules, keeps historical data and electronically files all contact correspondence. A word processor and expense tracking module are also included, the vendor said.

The list price is $249, with an introductory price of $189. Unlimited telephone support is included, according to the company.

Eighty/20 Software
1107 Hazeltine Blvd.
Chaska, Minn. 55318
612-448-8895

ASA/Micro-MRP has introduced Version 6.0 of Micro-MAX MRP, the company's manufacturing resource planning control system for IBM Personal Computers and compatibles.

The software reportedly includes modules for inventory planning and control, production, accounting and purchasing applications.

The program now features pull-down window interfaces and an expanded sales-order entry module, according to the vendor.

Pricing ranges from $495 to $19,995, depending on system configuration, the vendor said.

ASA/Micro-MRP
1st Floor
Century Plaza 1
1065 E. Hillsdale Blvd.
Foster City, Calif. 94404.
415-345-6000.

Symsoft Corp. has updated its graphics program for IBM Personal Computers, Personal System/2s and compatible machines.

Hotshot Graphics 1.5 was designed to complement word processors and page layout programs by speeding and simplifying the preparation of artwork, the vendor said.

The software supports desktop publishing, slides and other graphic presentation applications and reportedly includes a database directory and full-page editing capabilities.

Hotshot Graphics is priced at $249.

Symsoft
444 1st St.
Los Altos, Calif. 94022
415-941-1552

Xyquest, Inc. recently announced that technical support services that are provided for its Xywrite customers have been expanded.

The expansion reportedly will include additional technical support hours, a new electronic reference board and a subscription service to Xywrite Application Notes.

Customers will also have the opportunity to update to the most current version of Xywrite III Plus, according to the vendor.

Registered users can receive a password to the information line for an annual subscription fee of $50.

Xyquest
44 Manning Road
Billerica, Mass. 01821
508-671-0888

Berkeley Softworks has released Geochart, a chart-generator software package, for use with Commodore Business Machines, Inc.'s Models 64 and 128 computers.

The product was developed to graphically display numerical data from word processing, spreadsheet and database files and is capable of charting up to 80 values in nine formats, according to the vendor.

Features include a what-you-see-is-what-you-get format, pull-down menus, icons and windows. The package is priced at $29.95.

Berkeley Softworks
2150 Shattuck Ave.
Berkeley, Calif. 94704
415-644-0883

A modular, integrated accounting package for IBM Personal Computer and Personal System/2 users has been announced by Computer Trends, Inc.

According to the company, AXS 2 (pronounced access) includes on-line database facilities and provides general ledger, accounts payable and accounts receivable modules.

The real-time system reportedly updates all accounts instantly and can generate accurate period-to-date financial statements at any time. All reports are preformatted.

AXS 2 costs $485.

Computer Trends
116 E. Washington
Ann Arbor, Mich. 48104
313-662-5979

Strategic Software Planning Corp. has enhanced its stand-alone project planning software system.

Project Outlook was written specifically for the Microsoft Corp. Windows environment and offers a fully graphical user interface, the vendor said.

Version 2.0, which is scheduled to ship at the end of the first quarter, reportedly provides a scheduling and tracking system that adheres to strict critical-path methodology.

The software is priced at $495, the vendor said.

Strategic Software Planning
1 Athenaeum St.
Riverview II
Cambridge, Mass. 02142
617-577-8800

Software utilities

Autoease, Inc. has released the Automaster Template Series for users of Autodesk's Autocad Release 10.

The templates were designed to simplify the Autocad applications. They include a set of custom macros with such features as multiple line command and schedule generation, according to the vendor.

The templates cost $245 each.

Autoease
1325 S. 800 East
Orem, Utah 84058
801-224-8833

A database tagging utility has been released by Publishing Solutions.

Called Datatag, the product was reportedly developed for use with Interleaf, Inc.'s Publisher and TPS, versions 3.0 and 4.0. The software package allows the users to tag and code fields in a comma-delimited ASCII database file, the vendor said.

Datatag is priced at $249.

Publishing Solutions
Suite 17-T
205 E. 78th St.
New York, N.Y. 10021
212-288-2470

Lerman Associates has announced Extra K, a memory management product for use with Lotus Development Corp.'s Symphony spreadsheet software.

The memory utility reportedly allows users to selectively unload the four non-spreadsheet portions of Symphony and reuse that memory in their worksheet.

Extra K costs $79.95 plus $4.00 for shipping and handling.

Lerman Associates
12 Endmoor Road
Westford, Mass. 01888
800-233-4671

An object-oriented tool kit for C programmers has been released by Complete Computer Corp.

Called Complete C, the software package is said to include a driver, translator, foundation classes, logical debugger, product module, application streamliner and documentation generator. The program runs on MS-DOS machines and is priced at $269, which includes reference manuals and technical support. Educational discounts and site licenses are available, the vendor said.

Complete Computer
111 West 57th St.
New York, N.Y. 10019
212-582-2635

Ajida Technologies, Inc. has announced Version 2.0 of Plotview, a utility program developed for viewing, printing, cutting and pasting Hewlett-Packard Co.'s Graphics Language format plot files.

The program comes in two versions: one for those already running Microsoft Corp.'s Windows, priced at $79; and another for those without Windows, priced at $99.

The product is scheduled for delivery this month and will be offered in both 5¼-in. and 3½-in. disk formats, the vendor said.

Ajida Technologies
613 Fourth St.
Santa Rosa, Calif. 95404
707-545-7777

A menu-driven template program designed for spreadsheet users has been announced by K.I.T.A.L. Software in Karmiel, Israel.

Menu-range was reportedly developed for Lotus Development Corp.'s 1-2-3 and Borland International's Quattro users. The program allows any rectangular range of cells in the spreadsheet to be utilized as an active menu-range, according to the vendor.

The software program runs on IBM Personal Computers, Personal System/2s and compatible machines and is available for $50.

K.I.T.A.L. Software
17/1 Arbel St.
Karmiel, Israel 20100
972-4-987255

Isogon Corp. has begun shipping Release 2 of Dboost, a software program designed to reduce the time of Ashton Tate Corp.'s Dbase III, III Plus and Dbase IV programs by up to 60% or more, the vendor said.

It accommodates Dbase applications compiled with Wordtech Systems, Inc.'s Quicksilver, Nantucket Corp.'s Clipper and Fox Software, Inc.'s Foxbase Plus. With databases of typical size, compiled applications are reportedly 25% to 35% faster.

The package requires no change to programs or files and is available for $69.95, plus $3.50 postage and handling.

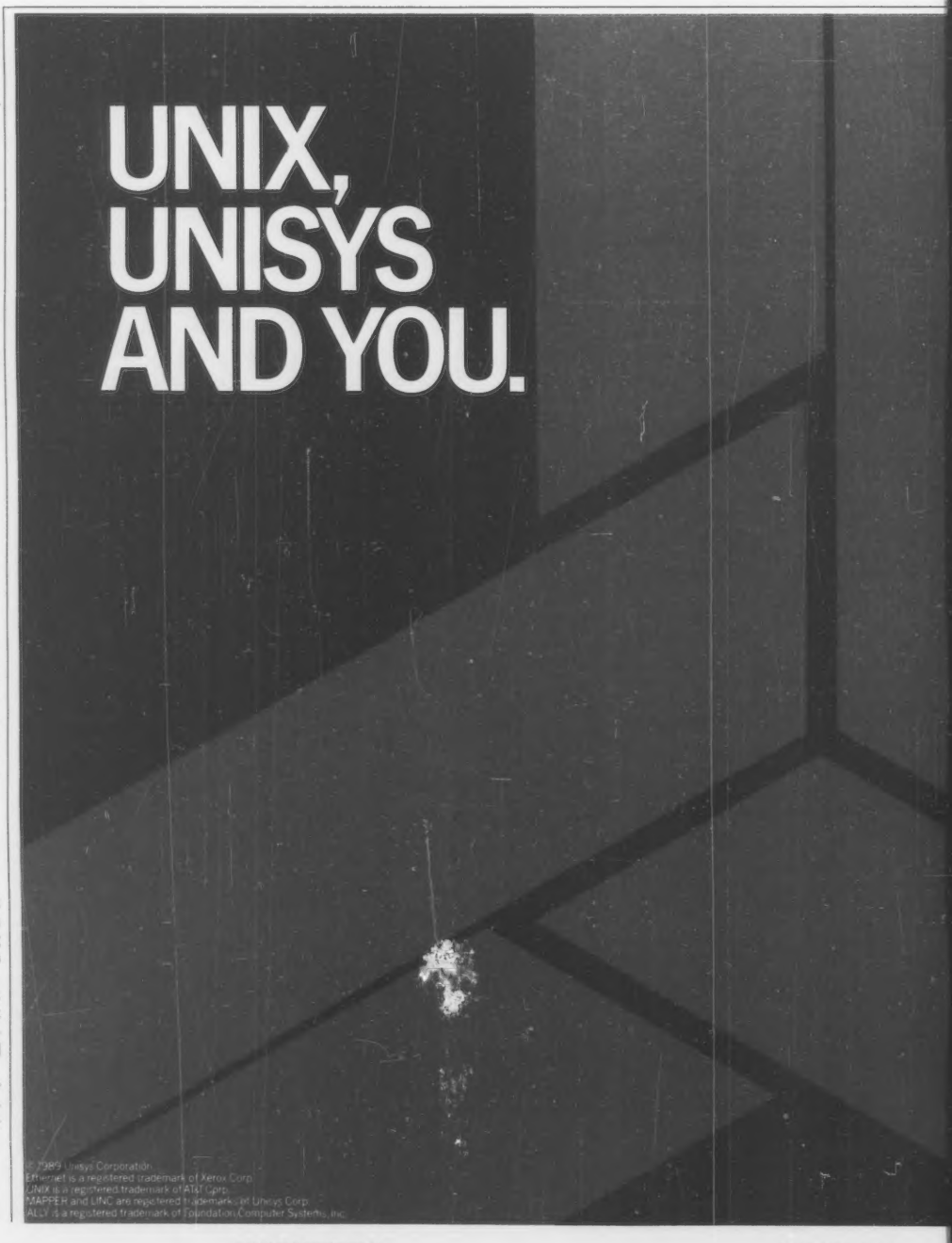
Isogon
330 Seventh Ave.
New York, N.Y. 10001
212-967-2424

A software program was specifically designed to meet the mandatory Internal Revenue Service requirements for reporting all 1099 and W-2 forms has been announced by Internal Reporting Systems, Inc.

The Magnetic Media Reporter imports information from three types of files for storage on magnetic media: Ashton-Tate Corp.'s Dbase III and IV, ASCII export files and ASCII printed files, according to Reporting Systems.

The package carries a price tag of $195.

Internal Reporting Systems
Suite 406
39120 Argonaut Way
Fremont, Calif. 94538
800-235-6646



Peripherals

A paper feeder that will reportedly provide 1,000 sheets of capacity to laser printers has been announced by Advanced Technologies International, Inc.

The SF family of sheet feeders are operator-installable and will operate with ATI Models 0880 and 1570, as well as Ricoh Corp. 8 and 15 page/min printers and Canon U.S.A., Inc.-based laser printers, the vendor said. The units come in versions for both domestic and international output devices and cost $795 each.

ATI
355 Sinclair-Frontage Road
Milpitas, Calif. 95035
408-942-1780

A 14-in. multifrequency monochrome monitor that supports most popular graphics applications has been introduced by Panasonic Industrial Co.

The Panasync C1391 reportedly offers a horizontal resolution of 800 lines and a vertical resolution of of 600 lines, with a 0.31mm dot pitch. A three-way color switch is incorporated into the device that changes text color to green, amber or paper white in transistor-transistor logic mode, the vendor said.

The Panasync monitor is scheduled for first-quarter delivery and is priced at $949.

Panasonic
2 Panasonic Way
Secaucus, N.J. 07094
201-348-7000

Hewlett-Packard Co. has introduced the HP IGC, an intelligent graphics controller, and a set of large-screen color displays.

The products are targeted at IBM Personal Computer AT and compatible users wanting to take advantage of computer-aided design technology, according to the company. The intelligent graphics controller supports resolutions up to 1,024 by 768 pixels and can display 16 colors from a palette of 4,096. It is priced at $1,400.

Three displays are available to complement the controller: the EGA Emulation Module, priced at $395; the 20-in. Color Display, priced at $3,695; and the 16-in. Color Display, which costs $2,795.

HP
3000 Hanover St.
Palo Alto, Calif. 94304
800-752-0900

Xerox Corp. has announced a high-resolution, large-screen monitor and adapter card, both designed to enhance the use of desktop graphics applications on IBM Personal Computers and compatibles.

The Panorama is reportedly a 19-in. monochrome monitor capable of displaying two full pages in a side-by-side format and is compatible with several applications, including Autodesk, Inc.'s Autocad and Lotus Development Corp.'s 1-2-3 and Symphony spreadsheet packages.

The Panorama monitor and Xerox Graphics Adapter card cost $1,995.

Xerox
Xerox Square 06B
Rochester, N.Y. 14644
800-832-6979

Aedex Corp. has introduced the Jetpak Plus Barcode Commander Intelligent Cartridge, a dedicated bar-code label-generation system for use with laser printers.

The product plugs into the cartridge slot of either Hewlett-Packard Co. Laser-

Aedex's *Jetpak*

jet Series II or Canon U.S.A., Inc. A1/A2 series laser printers. It automatically builds bar code and produces user-definable lines and borders with variable size text and graphics, the vendor said.

The system is priced at $995, which includes the cartridge, a forms-generation software package and a mouse.

Aedex
1070 Ortega Way
Placentia, Calif. 92670
714-632-7000

Macintosh products

Kennect Technology has introduced two products for Apple Computer, Inc. Macintosh 512E, Plus and SE computers.

Rapport is a companion microprocessor and drive controller that plugs into the external drive port of a Macintosh. It allows users to read MS-DOS files from 720K byte, 3½-in. disks while utilizing existing internal drives, the vendor said. Rapport is priced at $295.

The firm also announced Drive 2.4, an external drive that allows Macintosh users to read, write and format to all current IBM and Apple 3½-in. standards, including the Macintosh IIX and the IBM Personal System/2. The device costs $495.

Kennect Technology
271 E. Hacienda Ave.
Campbell, Calif. 95008
800-552-1232

It seems like every computer company wants you to count on their commitment to open systems, total solutions and a customer-oriented outlook.

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We've added simplified networking capabilities to make our UNIX systems readily compatible with networks like Ethernet.

And we've put the most popular database software on our systems. Plus productivity tools like Unisys MAPPER, LINC and ALLY systems that go beyond 4GLs and CASE to ease implementation and help reduce training costs.

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The point of it all is to put the real power of the UNIX operating system in your hands. Freedom to design optimal (cost/performance/quality) solutions without technical constraints or changing the way you do business.

When you think about open systems, think about UNIX System V—the open system that's working today. And when you think about the UNIX operating system, think of your freedom to choose any vendor you want.

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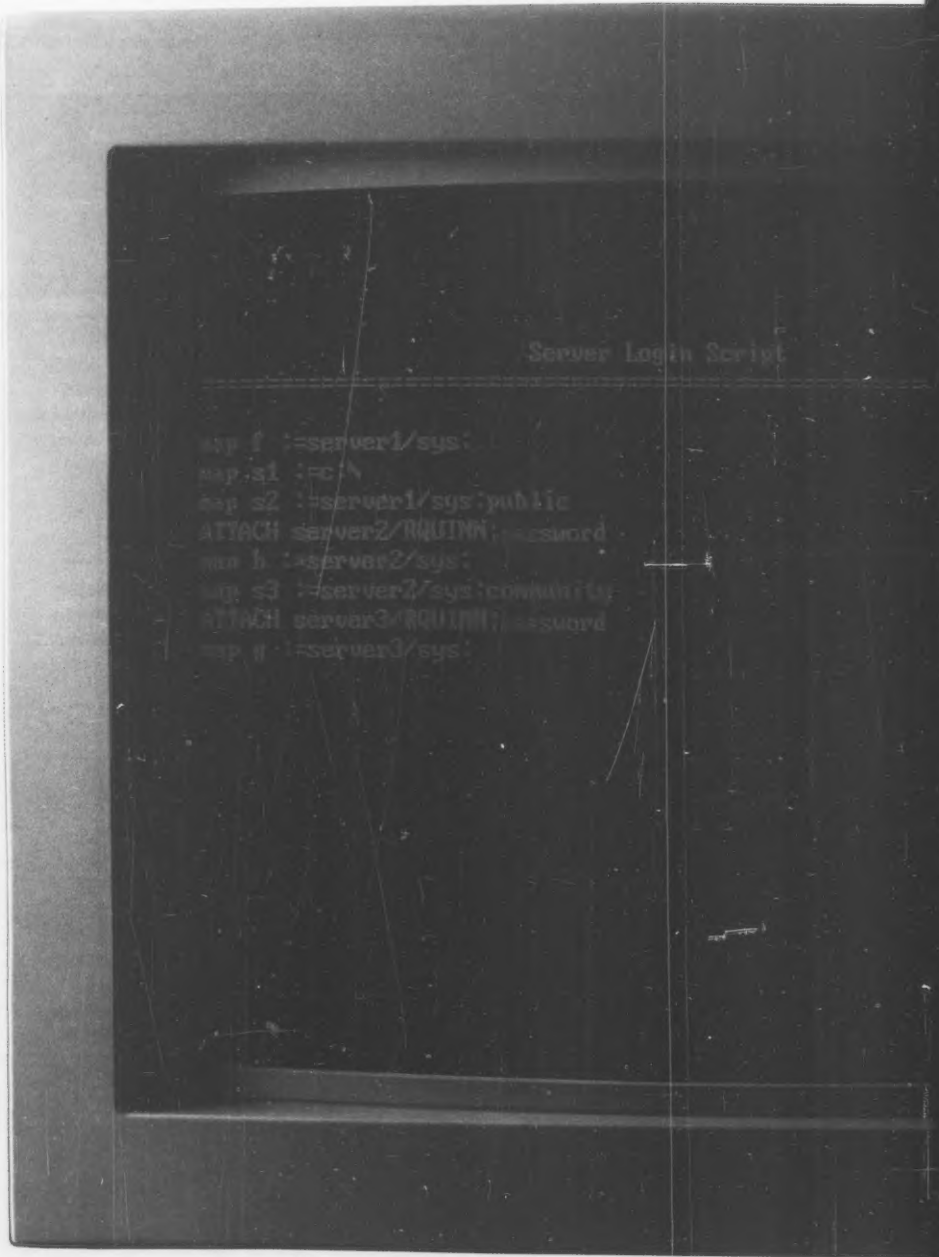


BANYAN Networks for those who think big.

DATA STREAM

Elisabeth Horwitt

When others tend your net

They tell me that corporate network managers are crying for Mother — Ma Bell, that is. Well, why not? In predivestiture days, companies ordered everything from AT&T and howled for AT&T whenever there was a problem.

Those were the days. Now post-divestiture has complicated telecommunications departments' lives, with an ever-shifting array of tariff structures and diverse, rapidly evolving technology.

Management is simultaneously demanding strategic, reliable communications and a firmer bottom line. It is small wonder that telecommunications managers are wailing, "We don't want to be our own phone company anymore! Let someone else take over the burden!"

Lots of vendors would be happy to do so. AT&T and big systems integrators such as Electronic Data Systems (EDS) and Computer Sciences Corp., for instance, have plenty of experience being "full source" networking providers in the government sector and are now tackling the private sector as well.

Such companies specialize in putting a network together, including evaluating a company's communications needs and designing and implementing a system to meet them.

This kind of service is great

Continued on page 66

Host-PBX links lack software

Users roll own telephone-to-database applications, await standards

BY ELISABETH HORWITT
CW STAFF

As Integrated Services Digital Network (ISDN) matures from a concept to a commercially available technology, more companies are turning to voice/data applications that harness hosts' computing power to the communications system. But with no standardized computer-to-private branch exchange software interface available, companies that want multivendor connections end up doing the job themselves.

American Transtech is one such company. The Jacksonville, Fla., financial services bureau, which is wholly owned by AT&T, has been using its parent's ISDN Primary Rate Interface service to give its telemarketing people a competitive edge. When a call comes in, an AT&T PBX picks up the caller's identification number from the service and uses it to access the customer's account data on an AT&T 3B host, which is running AT&T's Edge telemarketing software package, and display it on the agent's screen.

But Transtech wants to extend the application beyond AT&T hosts to other platforms, which requires programmers to write a separate interface for each additional software environment.

"We have an ISDN core group whose primary function is to establish interfaces [between AT&T PBXs and] software systems such as CICS, DB2, IMS and Oracle," said Todd Stevenson, a Transtech telecommunications manager.

The answer to this problem is a standardized programming interface that will allow applications such as Edge to be ported among a variety of PBXs and computer software environments.

Stops along the way

A subcommittee of the European Computer Manufacturing Association (ECMA) is just beginning to hammer out such a standard, but usable protocols are apparently some years off. Meanwhile, AT&T, Digital Equipment Corp. and Northern Telecom, Inc. are pushing their own protocols as de facto standards and as a possible basis for the official standard.

AT&T's offering is the Ad-

Continued on page 70

Joint effort to smooth file exchange

BY JEAN S. BOZMAN
CW STAFF

MOUNTAIN VIEW, Calif. — Network General Corp. and Network Computing Devices, Inc. (NCD) agreed recently to jointly develop and market X Window System technology to facilitate file exchange between computers made by different manufacturers.

"NCD is building high-performance graphics workstations that speak the X Window language and draw images on the screen," said Harry J. Saal, president of Network General, which is headquartered here. "Our products provide complete anal-

Continued on page 67

Third parties show off net wares at Networld

BY ELISABETH HORWITT
CW STAFF

BOSTON — Last week's Networld East '89 show, which focused on Novell, Inc.'s Netware network software and compatible products, was the scene of numerous third-party announcements, including high-power network interfaces and gateways for Netware networks.

• Spectrum Concepts, Inc. in New York announced Version 1.5 of its LU6.2-based IBM Personal Computer file transfer package, Xcom 6.2/PC. The enhanced software is said to be easier to use, requires less memory and sends large batches of files automatically. A background operation feature reportedly allows users to continue working on a PC application while Xcom 6.2/PC automates file transfer.

The product reportedly supports IBM mainframe VTAM environments, Netbios-compatible local-area networks and a variety of LU6.2-based LAN gateways, including Novell's Netware 6.2 gateway. The package is priced at $495, the company said.

• BICC Data Networks, Inc. in Westboro, Mass., introduced Ethernet controller cards for IBM's PC AT and Personal System/2 that are said to use 16-bit Bus Master technology to provide the throughput necessary to match the higher transmission demands of IBM's high-speed Micro Channel Architecture bus and multitasking systems.

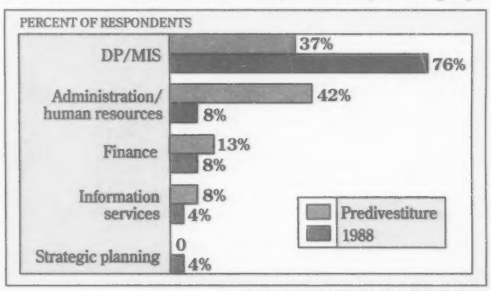
The Netware-compatible controllers reportedly provide

Continued on page 67

Data View

Integrating telecom

Since divestiture, many companies have moved their telecommunications function under the jurisdiction of the MIS group



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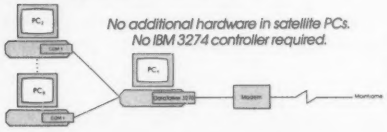

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An Interface Systems, Inc. Company

Horwitt

FROM PAGE 65

for Fortune 500 companies that have allowed their various sites to install just about anything they pleased and now face integrating a wide assortment of proprietary host networks, LANs and electronic mail systems.

But now some of these vendors are offering to stick around after the implementation is complete and manage your network for you. Such vendors include traditional systems integrators, major computer vendors, the regional Bell operating companies, Big Eight accounting firms and independent companies such as Network Management Inc., which have been aggressively merging with one another to compete with the big guys.

There are some advantages to entrusting your network to one of these players. You save money, at least up front, by not having to set up an expensive network control center and hire expensive technical experts. Presumably, too, the vendor will figure out some way to wrap one cohesive network management system around your particular combination of equipment. When trouble arises, you'll have one party to complain to, which will be responsible for figuring out the source. No more finger-pointing!

But the big issue still remains: trust. Will this third party treat your network as its own? Will it respond rapidly enough to a network breakdown? Are you sure you want to put that much control in the hands of a vendor?

It's still too early to get a good reading on how users are faring with this type of service. But a few tales of woe, or at least uneasiness, have leaked out.

For instance, a Westinghouse communications manager is worried that his company would be giving too much power to AT&T by turning over to the company both networking and network management responsibilities under Tariff 12. AT&T has been trying to reassure its current and future users that they will still have some control over their networks by introducing a series of offerings that allow users to collect performance information from — or reconfigure bandwidth on — AT&T network services.

There's no question that such services fulfill a useful function. But they still leave AT&T in the driver's seat, determining exactly how much fault or traffic information the user gets to see. More important, they in no way free the customer from dependence on AT&T's network management services. Once you turn over both networking and network management to a single company, it may be very difficult to change your mind — if, for example, rates skyrocket or you want something that the vendor cannot provide. This is precisely AT&T's motive in offering very special deals for companies that sign up for comprehensive services, industry gurus claim.

On the contrary

Of course, if you have to depend on some vendor, AT&T seems a good choice with all its experience and resources. Conversely, if you go with a third-party consultant or systems integrator, there is the chance that it won't know your particular equipment well enough to do a good job. A certain government agency's packet-switched network is currently being managed by a systems integrator that reportedly was unable to figure out why, during peak traffic hours, host sessions mysteriously disappeared. The integrator kept blaming it on the host side of the network, but IS managers finally figured out on their own that PADs were "solving" the traffic congestion problem by routinely clearing all their ports. The agency may not use that integrator much longer.

One caveat applies to any type of network management service: It's far easier to relinquish autonomy and its accompanying responsibilities than to reassume them. Letting someone else do your thinking for you can be addictive.

Horwitt is a *Computerworld* senior editor, networking.

How Ameritech helped The Dow Chemical Company

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Fibercom offers FDDI-based host

BY ELISABETH HORWITT
CW STAFF

ROANOKE, Va. — Fibercom, Inc. has become the latest in a succession of vendors to announce channel-based host networking products that will be based on the Fiber Distributed Data Interface (FDDI) standard.

Once an esoteric market dominated by IBM and a few specialized players, the high-speed channel-based host networking arena has lately enjoyed entries from a variety of players, including Fibercom archrival Fibronics International, Inc. Fibercom and Integrated Networks Corp. both announced FDDI-compatible channel-based IBM host networking products at the recent Communication Networks '89 conference.

Fibercom's Optichannel 7000 series of fiber-optic channel extenders can link two hosts or a host and a high-speed peripheral across distances of to 6.2 miles, while many existing products cannot extend much further than a mile, Fibercom said.

The modularly upgradable series starts at $18,000 for an entry-level system that supports data transmission speeds of 750K byte/sec. and distances of 2 km. The high end of the family, priced at $45,000, supports 3M byte/sec. across the 6.2-mile distance.

Networld

CONTINUED FROM PAGE 65

single-station throughput of 4.2M and 8.5M bit/sec. for server throughput.

BICC's Isolan Multiprotocol Support software enables the controllers to support a variety of networking protocols, including Netware, Microsoft Corp. Networks, Transmission Control Protocol/Internet Protocol (TCP/IP), Open Systems Interconnect Transport Layer protocol, Sun Microsystems, Inc.'s PC/Network File System and Netbios protocols, the vendor said. The Model 4110-2 PC AT controller is priced at $495; the Model 4110-3 MCA controller costs $595.

NETWORLD 89™

• Automated Design Systems, Inc. in Atlanta unwrapped Windows Workstation Print, a new member of its Windows Workstation software family. The product is said to allow users to access printer functions over a LAN from a Microsoft Windows interface. Users can access either locally attached or shared LAN printers. Print jobs can be viewed and put into priority order by job number or user identification, the vendor said.

The initial software release supports Netware, with future releases slated to support 3Com Corp.'s 3+Open, Ungermann-Bass, Inc.'s Net/One, Banyan Systems, Inc.'s Virtual Network System and IBM's OS/2 LAN Server, according to the vendor. Slated for release this month, Windows Workstation Print is priced at $695 for an unlimited-use, single-file-server license.

• Palo Alto, Calif.-based CC:Mail, Inc. previewed CC:Mail Faxlink, a software gateway that allows PC and Apple Computer, Inc. Macintosh CC:Mail users to send, receive and view both text- and graphics-oriented facsimile messages through a LAN workstation equipped with an Intel Corp. Connection Coprocessor board. Faxes can be created like ordinary CC:Mail messages and addressed to users on multiple LANs and fax locations, including those running MS-DOS and OS/2, as well as Macintoshes equipped with internal fax boards, CC:Mail said. The product is priced at $995 per LAN, and delivery is scheduled for June.

• Outside of Networld, another computer-to-fax link was introduced by GE Information Services. GEIS announced that its Quik-Comm electronic mail service can now send messages to fax machines throughout the world.

As a result, users on IBM Professional Office System, Distributed Office Support System, Digital Equipment Corp.'s All-In-1 and Wang Laboratories, Inc. Office will be able to send messages to users who are not on those systems but who have fax machines, GE said. Receiving fax machines must be Group III facsimile terminals that conform to CCITT standards. Pricing for Quik-Comm to fax is distance-sensitive.

File exchange

CONTINUED FROM PAGE 65

ysis tools for every level of the ISO stack — from the transport level to the applications level."

Together, the two companies can offer a system that gives software houses and corporate end users the ability to "map" one type of screen format to another. This would mean that applications written for one type of computer system could be easily ported for use on another. NCD's graphics terminal, which draws on the intelligence of a network server, is compatible with Unix and Digital Equipment Corp.'s VMS operating systems.

Network General's line of Sniffer network analysis tools will allow X Window users to monitor a network and analyze the data packets riding on that network.

"The Sniffer tools can help an engineer tune the network computing system for higher performance by determining where bottlenecks are likely to occur," said NCD Executive Vice-President Judy Estrin. "They can also be used by software developers to write X Window applications to minimize network traffic."

The primary users would be vendors as well as software developers who are building X Window applications, Saal conceded. But the same technology, he said, could help programmers in large corporations make applications available across a wide spectrum of computer platforms.

The X Window System is a standard first developed by MIT researchers under the auspices of Project Athena in the mid-1980s. Project Athena, which was sponsored by IBM, DEC and the Defense Advanced Research Projects Agency, was an effort to discover ways to interconnect computer systems on a network.

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Host-PBX

CONTINUED FROM PAGE 65

junct/Switch Application Interface (ASAI), which defines a consistent set of formats for generating and sending messages back and forth between a computer and a PBX or another type of communications device such as a multiplexer, according to Frank Young, AT&T division manger of ISDN planning. The protocol works with the standard, and its formats are consistent with ISDN signaling protocols, Young said. AT&T should finalize the specification by the third quarter and make it generally available shortly afterward, he said.

ASAI was developed under the aegis of AT&T's ISDN DMI User Group. The group's approximately 160 members all support a lower level PBX-to-computer interface that AT&T introduced some years ago. But members of the group — in particular, major computer vendors such as DEC and AT&T that are rivals in the PBX arena — have not announced ASAI support. For example Network Equipment Technologies, Inc. is a member of the group, but a company spokesman said that the T1 switch vendor would not support de facto industry standards such as ASAI unless they become official.

Competition

The protocol has at least one rival for official standard status: Computer Integrated Telephony (CIT) protocols from Northern Telecom and DEC. The vendors announced an alliance to jointly develop a de facto industry standard, as well as to integrate DEC hosts and Northern Telecom PBXs, at Telecom '87 in Geneva. The duo are expected to release the first official version of their protocol in the next few weeks along with some software products to link their wares to other vendors' offerings. They, too, have submitted their entry to the ECMA.

Members of the ECMA subcommittee should have no trouble reaching a compromise from among different vendors' suggestions, AT&T's Young said. But Peter Bernstein, a consultant at Probe Research, Inc. in Morristown, N.J., tells a different story — one of disagreement among computer and PBX factions over whose device will have the upper hand in the exchange. "There is an awful lot of vendor politics involved in whether the PBX-to-computer relationship will be peer-to-peer or slave-to-host, because [both PBX and computer vendors] make money by having people predominantly use their software," Bernstein said.

While the official standard is on hold, PBX vendors are coming up with their own links to the host environment — and vice versa. AT&T is working on software to link its PBXs to a variety of host software environments, according to Transtech's Stevenson. The software will probably be based on ASAI — but is likely to include proprietary elements.

Meanwhile, Northern Telecom is working on "the ultimate interface" that would provide links between the vendor's PBXs and a variety of computer systems, according to Richard Clements, a telecommunications manager at Provo, Utah, telemarketing firm Nice Corp. This will be helpful to Nice, which wants to develop ISDN-based telemarketing applications over links between Northern Telecom's PBXs and Tandem Computers, Inc. and Hewlett-Packard Co. hosts.

> IBM IS TAKING an uncharacteristically low-profile role in this particular front of the standards war.

DEC, for its own part, is not staying exactly faithful to Northern Telecom's switches. The company has also forged similar alliances with European switch vendors — including British Telecom International, Ericcson Information Systems, Siemens AG and Mitel Corp. — that have already announced products or plans to implement the protocol.

DEC clearly does not countenance ISDN as a way for the PBX to become the dominant voice/data switch at the expense of other networking devices, according to Lee Sudan, DEC director of enterprise networks. PBX links are only one part of DEC's CIT offering, Sudan said. The other component is an application programming interface that is specific to DEC systems and "not really dependent on lower [networking] layers." ISDN is best used to integrate voice and data over wide-area network services and on the same wire, he said, adding that Ethernet and LAN technologies are the best ways of doing data networking.

Central office switches

DEC is also integrating its hosts with carriers' central office switches to support intelligent networking applications on the service side that will compete with host/PBX applications on the customer premises side. IBM, Data General Corp. and other major computer vendors are also targeting this market.

IBM is taking an uncharacteristically low-profile role in this particular front of the standards war. Vice-President Ellen Hancock made it clear at the recent Communication Networks '89 conference in Washington, D.C., that the vendor intends to play a major role in computer-to-PBX integration through its new alliance with Siemens.

But while Hancock said IBM "made a contribution to ECMA on how hosts should talk to switches," another IBM spokesman said the vendor is proposing no interface of its own as a standard.

BIT BLAST

Feds choose Apollo for FDDI development

Apollo Computer, Inc. has been awarded a single-source development contract by the federal government to deliver an implementation of the ANSI standard Fiber Distributed Data Interface (FDDI). Apollo will build a network that uses its Series 10000 Personal Supercomputer and Station Management Software. It will also oversee a heterogeneous implementation of FDDI and certify another yet-to-be-determined vendor's execution of the standard.

Information Builders, Inc. and **Interlink Computer Sciences, Inc.** have announced a marketing agreement to facilitate integration of their product lines. With help from Interlink, Information Builders has developed the Focnet/Interlink Interface, which reportedly enables its Focus software to use an Interlink gateway to connect Information Builders' VAX and IBM database products over Digital Equipment Corp.'s Decnet. The interface is said to provide file transfer speed of 1M bit/sec. and support 256 simultaneous users.

AT&T was selected by Italian telecommunications equipment manufacturer **Italtel** as its prospective partner in the development and marketing of public and private telecommunications equipment worldwide. The alliance should further AT&T's plans for expansion in the overseas telecommunications equipment market, AT&T Chairman and Chief Executive Officer Robert E. Allen indicated.

Unisys Corp. recently joined about 30 other computer manufacturers and systems integrators that provide links to **DEC's** Decnet via Community software from **Technology Concepts, Inc.** Under an OEM deal with the Bell Atlantic Corp. subsidiary, Unisys said it will sell DEC Network Interconnect software for its U series of Unix-based minicomputers.

International Technegroup, Inc. has agreed to provide computer-aided design (CAD) translation and consulting services to users of **GE Information Services'** Design Express service. The service, which the General Electric Co. subsidiary recently added to its familiy of electronic data interchange services, is said to allow users to exchange CAD documents electronically.

Globenet, Inc., an interchange carrier and public data network, has signed an agreement with International Trade, Inc. to provide worldwide data communications service to users of International Trade's on-line service.

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NEW PRODUCTS

Local-area networking hardware

Hyundai Electronics has introduced an IBM Personal Computer AT-based local-area network workstation.

The 286 Workstation is reportedly based on the Super-286c processor and includes an NE-1000 network interface card. The unit can be configured with Hyundai's LAN PAC products and is priced at $1,645.

Hyundai
166 Baypointe Pkwy.
San Jose, Calif. 95134
408-473-9200

Interlan, Inc. has introduced controller cards said to provide personal computer users on 3Com Corp. 3+ networks with Transmission Control Protocol/Internet Protocol capability.

According to the company, the cards are available for either the IBM Personal Computer XT and AT or Micro Channel Architecture machines and include terminal emulation, file transfer and electronic mail capabilities.

The NI5210 XT and AT version and NI9210 Micro Channel version are priced at $895.

Interlan
155 Swanson Road
Boxboro, Mass. 01719
508-263-9929

BICC Data Networks, Inc. has expanded its Isolan Ethernet product line to include four twisted-pair local-area network products.

The announcments include: the 2300 Floor Concentrator, priced at $3,145 and designed to support eight twisted-pair ports and one standard IEEE 802.3 port; the 2301 Local Concentrator multiconnect device, listing at $2,145; the 2302 Thin Net Converter, designed to connect a thin Ethernet segment to a twisted-pair network and priced at $761; and the 2303 Twisted-Pair Transceiver, which is priced at $162, according to the vendor.

BICC Data Networks
1800 West Park Drive
Westboro, Mass. 01581
617-898-2422

Network management

Azure Technologies, Inc. has expanded its line of protocol analyzer products with the addition of the Coaxcontroller.

Reportedly, the IBM Personal Computer-based product provides IBM 3270 control-unit emulation and can reproduce complex sequences of up to 16M bytes that were recorded by the Azure Coaxscope. A full-screen editor and debugging capabilities are included. It costs $2,995.

Azure Technologies
38 Pond St.
Franklin, Mass. 02038
508-520-3800

BBN Communications Corp. has introduced a network management software tool that offers remote datascope capabilities for network operations and support-staff personnel.

Called Netscope, the product was designed to monitor CCITT X.25 packet switching node host ports on a BBN private packet network, the company said. It reportedly can be used at either a central debugging site or at a remote Help desk. Scheduled for delivery in the second quarter, the software will be licensed for $20,000.

BBN Communications
150 Cambridge Park Drive
Cambridge, Mass. 02140
617-873-2683

Telematics International, Inc. has announced a network system for the Digital Equipment Corp. VAX/VMS computer environment.

According to the company, the Transaction Accelerator will allow a VAX computer to support as many as 30% more users and will reduce network costs by cutting traffic by as much as 80%. The product consists of an Ethernet-attached front-end processor and remote VT cluster controllers. VMS Version 4.6 or higher is required for operation.

Scheduled for delivery in the second quarter, the Transaction Accelerator will be priced from $45,000.

Telematics
1201 Cypress Creek Road
Ft. Lauderdale, Fla. 33309
305-772-3070

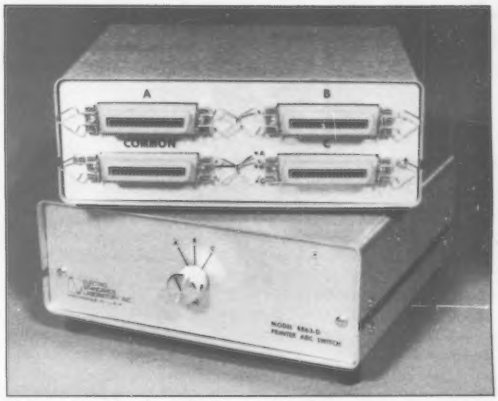
Network services

Satellite network vendor Cylix Communications Corp. is offering disaster recovery services to customers on a subscription basis. Customers can connect their disaster recovery centers to Cylix's central hub as a backup facility for failures either on their own network or on a local carrier's network.

An on-call service is said to provide restoral of Cylix-based network links within 48 hours after notification. A dedicated backup service is said to restore operations within minutes after an outage.

Pricing varies depending on service required.

Cylix
800 Ridge Lake Blvd.
Memphis, Tenn. 38119
800-821-5295



Electro Standard's *8863-D transfer switch*

Links

Electro Standards Laboratory, Inc. has expanded its line of data communications equipment to include the Model 8863-D, a minicomputer-to-printer parallel-interface three-way transfer switch.

The product is used in minicomputer word-processing applications and multiple microcomputer installations. The transfer switch is data-speed- and code-transparent, according to the company.

The Model 8863-D costs $220.

Electro Standards
P.O. Box 9144
Providence, R.I. 02940
401-943-1164

Fujitsu America, Inc.'s ISDN Systems Division has unveiled an Integrated Services Digital Network terminal adapter.

Designated the SRS-300, the product reportedly offers full ISDN dual-port capability and provides access to B channel circuit-switched network service through two RS-232C ports.

In addition to circuit-switched transmission, the unit enables packet-switched communications through the D channel.

The SRS-300 costs $363 per port.

Fujitsu
3055 Orchard Drive
San Jose, Calif. 95134
408-432-1300

A software developed to translate information from mainframe and minicomputer reports directly into microcomputer applications has been announced by White Crane Systems, Inc.

Called Autoimport, the product reportedly requires no reformatting for translating files directly into the personal computer applications. These include Lotus Development Corp.'s 1-2-3, Ashton-Tate Corp.'s Dbase III Plus and Dbase IV and Borland International's Quattro. The program uses any ASCII text files downloaded to disk by a host-to-PC file transfer program or network connection and is priced at $170.

White Crane Systems
Suite 151
6889 Peachtree Industrial Blvd.
Norcross, Ga. 30092
404-394-3119

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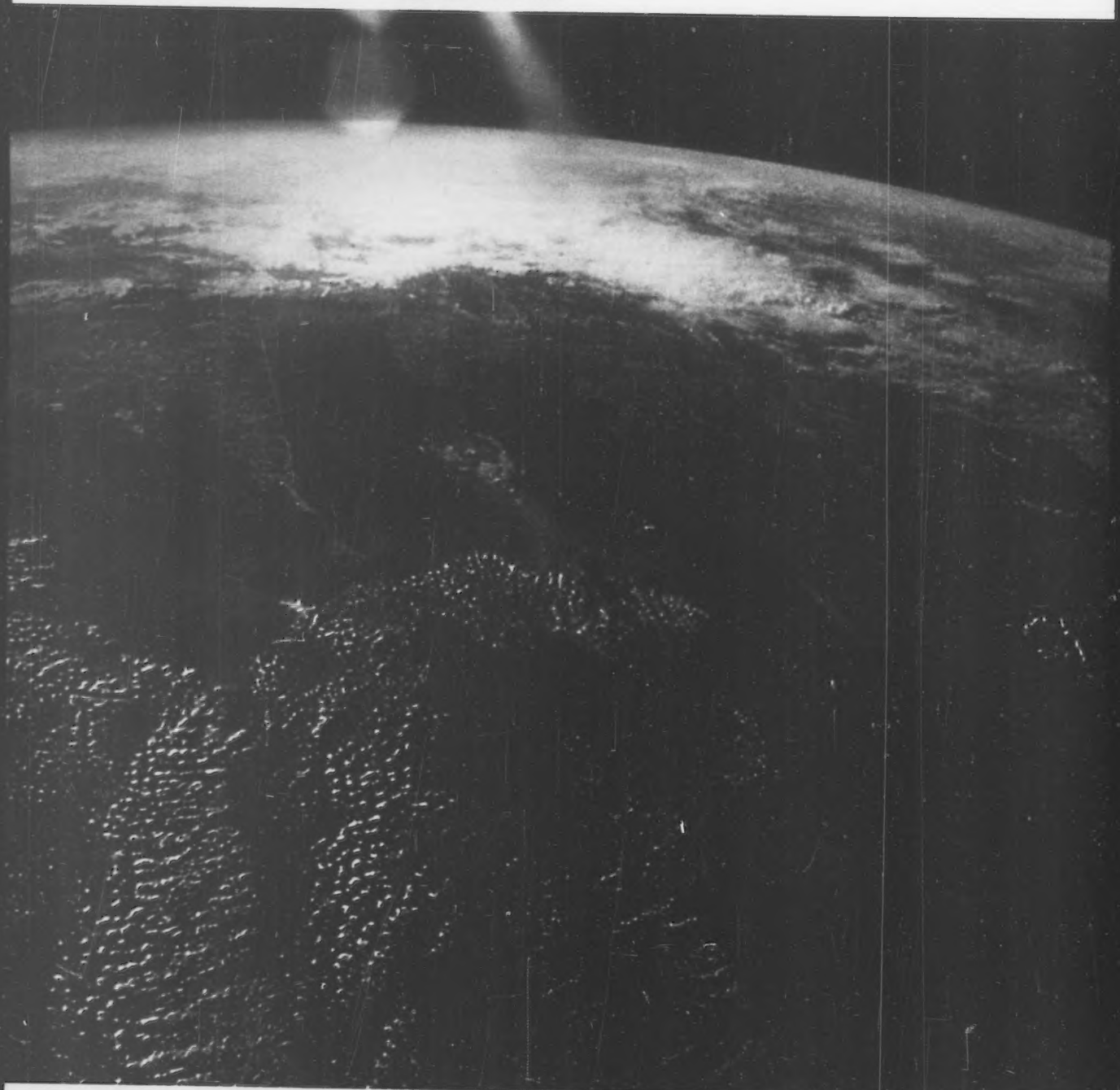

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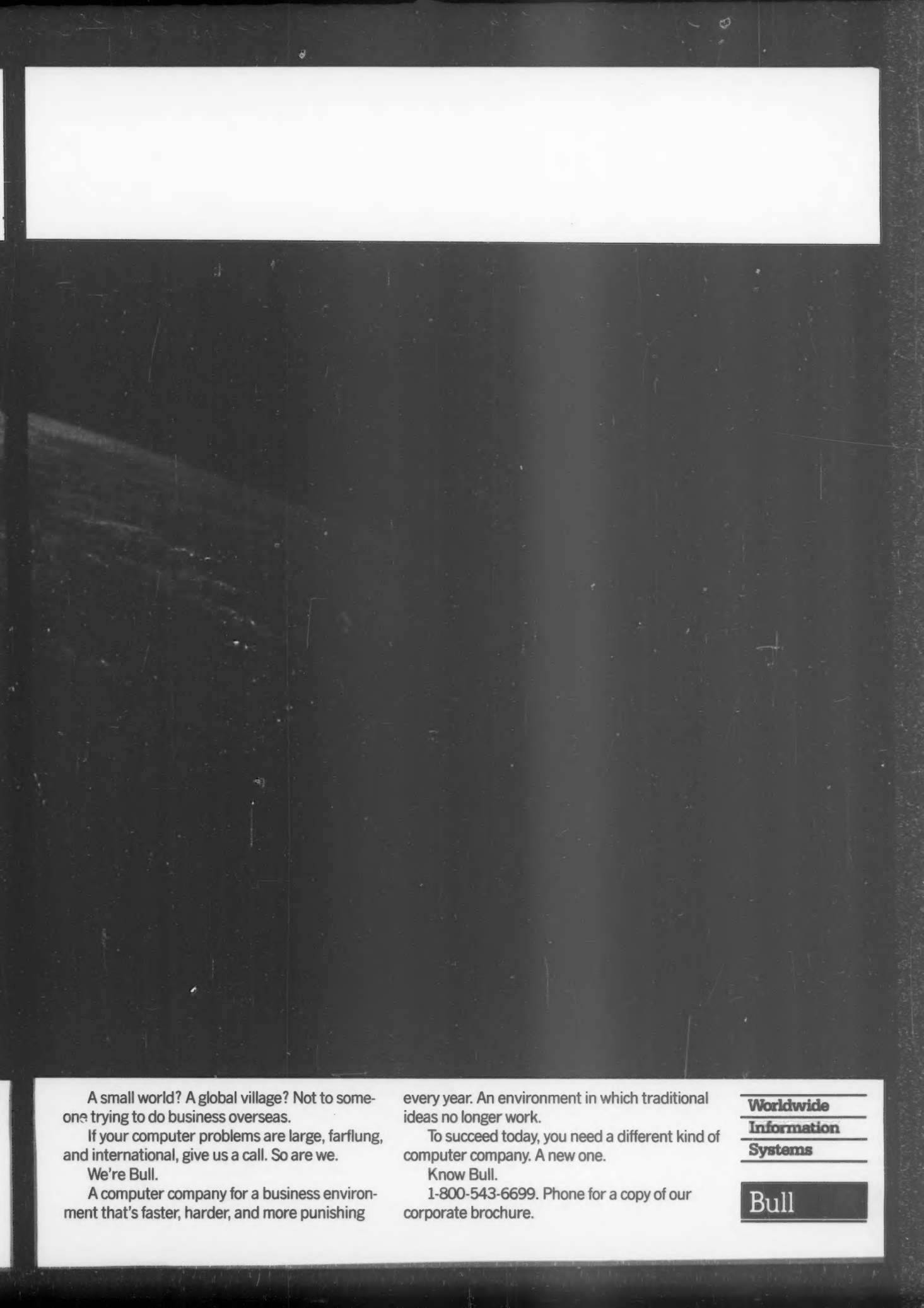
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A pop-up program that spools IBM Personal Computer printer output to a disk and allows users to access line and laser printers connected to a Digital Equipment Corp. VAX system has been announced by Walker Richer & Quinn, Inc.

Called RSVP, the product consists of an RSVP-PC and an RSVP link. The program requires DOS 2.1 or higher and a hard disk. It costs $500 for the host computer portion and $79 for each PC unit.

Walker Richer & Quinn
2825 Eastlake Ave. E.
Seattle, Wash. 98102
206-324-0350

Quadram Corp. has released Version 1.1 of its program development tool kit for its JT Fax 9600 PC facsimile board.

The product reportedly contains instructions that let programmers write to the JT Fax's shared random-access memory interface as well as work programs for all operations supported by the board.

The tool kit is available free to all registered JT Fax 9600 users. The JT Fax background board installs in IBM Personal Computer, PC XT and AT, Personal System/2 Models 25 and 30 and most compatible systems. It is priced at $795.

Quadram
One Quad Way
Norcross, Ga. 30093
404-923-6666

A printer-sharing device that connects up to 16 computers to one printer and allows users to prioritize them by order of connection has been announced by Datacom Technologies, Inc.

The Model 413 is compatible with most dot matrix printers, laser printers and plotters, and plug-in expansion modules may be added as needed. It is priced at $324.

Datacom
11001 31st Place W.
Everett, Wash. 98204
206-355-0590

Targa Technologies, Inc. has introduced a software product designed to extend Ashton-Tate Corp.'s Dbase language, giving Dbase applications the ability to read and write on-line IBM 3270 mainframe data, the company said.

Called Targapower, the software requires a Digital Communications Associates, Inc. Irma, IBM or compatible emulation board and a Dbase or compatible application to exchange data with existing 3270 applications. It costs $495.

Targa
Suite 502
5655 Lindero Canyon Road
Westlake Village, Calif. 91362
818-889-1968

A gateway that reportedly allows access to any resource in a broadband local-area network has been announced by Zenith Electronics Corp.

The Z-LAN 500 GW was designed to work with Zenith's broadband network of personal computer software and can be used with any IBM Netbios-compatible network adapter card, the vendor said. The product reportedly permits Ethernet and Token-Ring networks to access multiple mainframes on the Z-LAN broadband network.

The Z-LAN 500 GW can be used on any DOS-based IBM Personal Computer or compatible and is priced at $1,995.

Zenith
1000 Milwaukee Ave.
Glenview, Ill. 60025
312-391-8181

Harris Corp.'s Data Communications Division has announced a combination hardware and software product for wide- and local-area networking.

According to the vendor, the Supernet Super Channel is an intelligent gateway that will provide high-speed bidirectional access between IBM Systems Network Architecture networks and multi-vendor Ethernet networks. Pricing ranges from $40,000 to $60,000, depending on configuration and options.

Harris
16001 Dallas Pkwy.
Dallas, Texas 75248
214-386-2000

Dataprobe, Inc. has announced an RS-232/V.35 interface converter. The Model DR-7 allows direct interconnection of V.35 and RS-232 equipment and utilizes active line drivers to regenerate control and data signals, the vendor said. The product is priced at $365.

Also available is the Model K-DR7 automatic A/B switch, designed to facilitate automatic switching of V.35 circuits to RS-232 backup communications devices. The unit is packaged in a desktop enclosure that measures 8-in. wide by 6.5-in. deep and 3-in. high.

The Model K-DR7 costs $565.

Dataprobe
170 Coolidge Ave.
Englewood, N.J. 07631
201-569-6464

Xyplex, Inc. has announced full local-area transport (LAT) compatibility for its Maxserver line.

Called Xyplex LAT, the product works in conjunction with the company's Transmission Control Protocol/Internet Protocol (TCP/IP) support package and gives any user connected to a Maxserver terminal access to LAT and TCP/IP resources on the network, the vendor said.

The Xyplex LAT/TCP eight-port terminal server card for the Maxserver costs $1,495. The LAT software costs $495.

Xyplex
100 Domino Drive
Concord, Mass. 01742
508-371-1400

Choose your protocol converter from the company that gives you more choices.

KMW Systems offers the most complete line of protocol converters available, designed with experience in data communications that no one else can claim. We invented our first protocol converter more than 11 years ago, and we've been helping companies make the right connections ever since.

KMW protocol converters allow local or remote connection of virtually any asynchronous device to any system using IBM protocols.

Batch protocol converters.

KMW batch protocol converters allow high-speed (up to 56 Kbps), high-volume batch processing without operator interaction. 3770, HASP, and 2780/3780 emulation allows connection to a variety of printers, plotters, minis, micros, and KMW graphic element processors. Features include auto sign-on, menu-driven setup, on-board diagnostics, and V.35 or RS-232 host interfaces.

Coax protocol converters.

Without any host modification, our one-port, receive-only unit provides 3287 emulation for connection to low-cost ASCII printers, plotters and other devices. And adding a KMW VP-10 graphics processor lets your mainframe drive raster output devices.

Interactive protocol converters.

3174/3274 SNA and 3271 BSC cluster controller emulation allows up to eight CRTs, computers, and printers remote access to your mainframe. For maximum productivity, printer pass-through allows you to send one set of data to your printer while you work on a different set of data on your terminal or micro. Other features include 25th status line, color, graphics support and APL.

Twinax protocol converters.

KMW also manufactures protocol converters for use with IBM System 34/36/38 computers. KMW's Twinax converter lets you make the most of your System/3X, by allowing communication with ASCII printers, CRTs, PCs, and Macintoshes.

The support you need — from KMW.

You can count on KMW to provide the protocol converter you need — and to back it up with excellent service. We also offer a technical support hotline for immediate answers to your questions.

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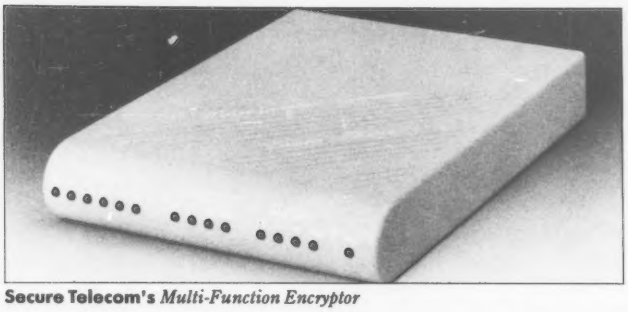

Secure Telecom's *Multi-Function Encryptor*

Secure Telecom, Inc. has introduced the Multi-Function Encryptor (MFE), an encryption device with modem and remote-control capabilities.

The product was designed to encrypt data transmissions between two directly connected computers and prevent the spread of computer viruses, according to the company. The device also reportedly encrypts data transmitted through telephones or modems to protect against wiretapping.

The MFE includes multiplexer and multidrop capabilities and is priced at $695.

Secure Telecom
P.O. Box 70337
Sunnyvale, Calif. 94086
408-992-0572

Wang Laboratories, Inc. has enhanced a gateway that reportedly allows users of Wang's Office to access IBM's Distributed Office Support System (Disoss).

The Wang Office/Disoss Gateway Release 3.0 provides support for the Wang VS SNADS (for IBM's Systems Network Architecture Distribution Services), an application-control protocol that allows store-and-forward distribution between Disoss and Wang Office. The company said the gateway also enables personal computer users in both Wang and IBM environments to exchange DOS files.

Scheduled for delivery in the second quarter, Release 3.0 will carry license fees ranging from $4,200 to $16,800, depending on configuration.

Wang
1 Industrial Ave.
Lowell, Mass. 01851
508-459-5000

Castle Rock Computing, Inc. has announced the ES200 802.3 network bridge. The product supports the IEEE 802.1 spanning-tree algorithm, which permits multiple ES200 bridges to be used as backups in case of network failure, the company said. The bridge has provision for one expansion board as well as other network attachments and is priced at $2,750.

Castle Rock
Suite 118
2841 Junction Ave.
San Jose, Calif. 95134
408-434-6608

Perle Systems, Inc. has announced that users of its 8294 controllers will be able to upgrade their software to match the capabilities of IBM's 5394 remote controller for its Application System/400. The upgrade will be supplied in three phases at a one-time cost of $595, the vendor said.

Perle Systems
1980 Springer Drive
Lombard, Ill. 60148
312-932-4171

A T1 communications controller designed to link terminal clusters to Digital Equipment Corp. Q-bus systems has been unveiled by Dilog Distributed Logic Corp.

Designated the CQ2010, the quad-height module occupies one slot in a DEC Microvax or PDP-11 backplane, the vendor said. It reportedly connects up to 128 asynchronous terminals by multiplexing them into a single T1 composite line. The product is priced at $3,900, and quantity discounts are available.

Dilog
1555 S. Sinclair St.
Anaheim, Calif. 92806
714-937-5700

Mitek Systems Corp. has announced an addition to its Openconnect line.

The Openconnect Server Model M2030-256 reportedly provides bidirectional communication between IBM hosts and non-IBM systems, including those from Digital Equipment Corp., Hewlett-Packard Co., Sun Microsystems, Inc., Apollo Computer, Inc. and AT&T. The server supports 256 sessions and is priced at $39,500.

Mitek Systems
2033 Chennault Drive
Carrollton, Texas 75006
214-490-4090

Migrating its proprietary Xodiac network architecture to the Open Systems Interconnect (OSI) standard, Data General Corp. has unveiled an implementation of the OSI FTAM protocol, dubbed DG/FTAM, and Applications Platform Interface, a tool kit for users and resellers to

Continued on page 78

Introducing the high speed modems from U.S. Robotics

Until now, high speed modem users had the best of one world. They either had speed or compatibility. U.S. Robotics just changed all that.

THE BEST OF ALL WORLDS...
With the new line of high speed modems from U.S. Robotics — the Courier HST, the Courier HST Dual Standard and the Courier V. 32 — you can now have both the highest speeds and the most compatibility.

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For the best of all worlds — it's the Courier HST Dual Standard, combining the blinding speed of the Courier HST with the compatibility of the V. 32. At $1,595, it costs less than some featureless V. 32-only modems.

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You would expect the broadest high speed modem line from U.S. Robotics. We manufactured our first HST in 1987, and it quickly became the standard on over 5,000 bulletin boards and over 40,000 users. Rated #1 by *Data Communications* magazine, it confirmed what our customers knew all along — U.S. Robotics delivers the best modem value. And we've been doing that for 13 years — for almost 1,000,000 customers.

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Bruce Sobolov, Director,
Equipment Planning and Administration,
Election & Survey Unit, CBS News

Laura Gismondi,
Account Executive,
AT&T Data Systems Group

Bruce Goldberg,
Area Technical Manager,
AT&T Data Systems Group

Bruce Sobolov of CBS News, Laura Gismondi and Bruce Goldberg, AT&T, savor the afterglow of their own post-election victory. They take us behind the scenes for a glimpse at some of the reasons why CBS was successful on election night.

FEBRUARY 15, 1989

Skating between terminals put ruts in the rug.

AT&T: Afterwards, the critics said CBS was the best, the fastest.

CBS: Right, but we sweated it out for more than a year. With more 20-hour days than I care to remember.

AT&T: Your situation was pretty complicated.

CBS: We were faced with election projections, exit-poll analysis, and other studio programming applications running on IBM hosts.

AT&T: Plus the NewStar system we tied in with our wide-area network, ISN. It's distributed networked computing. Hey, we thrive on this stuff.

CBS: We're impatient around here. Speed is the only way you succeed with election coverage. The first thing we did was provide multi-host access with the 6500 System. Last election, everybody who needed access to two systems used two terminals. Twice the space, twice the cable, additional controllers, added expense, and wasted time.

We had programmers working simultaneously on three host applications, two bisync, one SDLC. They were constantly skating between terminals, wearing ruts in the rug. Now they have access to multiple sessions simultaneously from one terminal.

AT&T: The data moves over twisted pair, the same type wiring the technicians pulled for your System 75 PBX. That made sense.

CBS: An added advantage was having the same dedicated AT&T technicians installing and maintaining our system, providing consistency to my operation.

AT&T: But really, Bruce, why us?

CBS: Your responsiveness. At CBS, we all agreed that what we needed was someone who could deliver it fast, install it, test it, and support it. And you were hungry. You never said, "No, we can't do it." And you never took long to say "yes."

AT&T: You had computer networking problems. Solving them is the house specialty.

CBS: We do distributed computing to the nth degree. Our reporters are all over the country. They call in their results when the precinct closes. Before, we had over a hundred operators standing by, with phones and terminals. That election night we introduced the voice response system running on AT&T PCs.

AT&T: How many calls?

CBS: Thirty, thirty-two calls at once, reporters everywhere having voice response conversations with the IBM host. And all done with the same custom host software we always used. We greatly reduced our cost.

AT&T: The other networks are watching, thinking, "How come CBS has the results already and we don't?"

CBS: It was a good night for us. Now the name of the game is streamlining for 1990. We're talking about a networked computer solution as a gateway into different host systems.

AT&T: With the AT&T Systems already up, running, and in place, we can almost completely automate your survey system.

CBS: That's a real big plus for all of us.

AT&T: Something tells me I've seen that same glint in your eye before. (Laughter)

The CBS Solution:

THE CHALLENGE:

Integrate IBM and DEC host computers and NewStar editorial system. Build an advanced computerized voice response system to speed election-night projections.

THE SOLUTION:

AT&T 6500 Multifunction Communication System with multi-host sync/async 6529 terminals. AT&T CONVERSANT® Voice System for advanced communications running on AT&T WGS computers. AT&T System 75 PBX. AT&T Information Systems Network (ISN), a wide-area network.

THE RESULT:

CBS News provided fast, accurate election coverage throughout Campaign '88. The *Baltimore Sun* reported that, "CBS was recording results in all sorts of key races faster and with far more authority than either of the other networks."

Call or contact your AT&T Account Executive, an Authorized AT&T Reseller, or call 1 800 247-1212, Ext. 154.

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Continued from page 75

develop OSI applications. DG/FTAM is scheduled for delivery in the fourth quarter. Pricing ranges from $1,500 to $17,500, depending on the DG Eclipse computer platform. DG/OAPI is also scheduled for fourth-quarter release, starting at $2,500.

Data General
3400 Computer Drive
Westboro, Mass. 01580
508-898-4051

Adacom Corp. has announced a coaxial eliminator that reportedly allows IBM devices to be connected over twisted-pair cable to a distance of 2,000 ft.

The CM-1 Baluns are used in pairs to permit the Type A controller port to transmit data over twisted-pair cable to a remote IBM peripheral. The product does not require an external power source and is priced at $30.

Adacom
8871 Bond
Overland Park, Kan. 66214
913-888-4999

Digital Communications Associates, Inc. (DCA) has announced a product that permits 10net local-area network users to communicate with a variety of equipment through the Transmission Control Protocol/Interconnect Protocol (TCP/IP) to other TCP/IP-based computing programs.

10net TCP is designed to integrate mini and mainframe computer environments offered by IBM, Digital Equipment Corp., Hewlett-Packard Co. and other vendors.

The package includes software modules and utilities for TCP/IP protocols and is scheduled for delivery this spring. It is priced at $395, and multiple site licenses are available.

DCA
1000 Alderman Drive
Alpharetta, Ga. 30201
404-442-4000

Heritage Communication Systems, Inc. has announced a terminal emulator that was designed to enable IBM Personal Computers, Personal System/2s or compatibles to access Digital Equipment Corp. VAX computers.

Called Emma, the combination hardware and software product consists of VT220, VT320, VT100 and VT52 emulation software and a printed circuit board with two RS-232 ports, the vendor said. The board handles host- and PC-processing simultaneously and is priced at $229.

Heritage
13416 N. 32nd St.
Phoenix, Ariz. 85032
602-992-1245

Poc-it Management Services, Inc. has introduced the Microman II Mainframe Bridge, which was designed to connect IBM mainframe terminals with selected functions of the Poc-it Microman II personal computer-based project management system.

According to the vendor, the bridge allows users to input information on the progress of their projects at their terminals rather than from a PC. The product is available for both IBM MVS and VM environments and is priced at $1,000.

Poc-it Management
Suite 512
606 Wilshire Blvd.
Santa Monica, Calif. 90401
213-393-4552

QMS, Inc. has announced the addition of a Colorgrafix Plus option for users of the company's Colorgrafix 100 printer.

The option reportedly allows direct connection of the printer to any Ethernet Transmission Control Protocol/Internet Protocol-compatible network.

The unit can be configured to run in Digital Equipment Corp., Sun Microsystems, Inc. and Apollo Computer, Inc. environments and costs $4,995.

QMS
1 Magnum Pass
Mobile, Ala. 36618
205-633-4300

Control Data Corp. has announced its Ascent Plus DNI (for Digital Equipment Corp. Decnet interface) software, which is designed to provide users of Pyramid Technology Corp. computer systems with access to Decnet software.

The product reportedly provides Ethernet-based Decnet end-node capabilities, including bidirectional remote file access and transfer. It also includes task-to-task communications, virtual terminal networking and network management functions, the vendor said.

Ascent Plus DNI will be sold under a marketing agreement with Technology Concepts, Inc., a Bell Atlantic company. The product is priced from $10,000 to $25,000, depending on the size of the Pyramid system.

Control Data
Integrated Information Services
4234 Hacienda Drive
Pleasanton, Calif. 94566
415-463-6800

Network Software Associates, Inc. has announced a mainframe gateway for IBM personal computers and compatibles connected to IBM's Token-Ring local-area network or any other IBM Netbios-compatible LAN.

The Adapt SNA LAN Gateway reportedly supports all major IBM Systems Network Architecture protocols, including interactive IBM 3270, cooperative LU6.2/IBM Advanced Program-to-Program Communications and batch.

A typical configuraton supporting eight concurrent PCs is priced from approximately $2,000.

Network Software
22982 Mill Creek
Laguna Hills, Calif. 92653
714-768-4013

A local-area network gateway with High-Level Language Application Program Interface for OS/2 is now available from Software Dynamics, Inc.

Called the SDI3274 LAN Gateway for OS/2, the product reportedly emulates the functions of an IBM 3274 Systems Network Architecture/Synchronous Data Link Control communications controller. It runs on IBM Personal Computer AT-class and Personal System/2 Micro Channel machines.

Pricing ranges from $750 to $3,210, based on configuration.

Software Dynamics
P.O. Box 247
Dunedin, Fla. 34697
813-733-8784

Protocol converters

KMW Systems Corp. has enhanced its twin-axial protocol converters to support IBM Application System/400 communications.

The Series II and Series III converters enable an Apple Computer, Inc. Macintosh, IBM Personal Computer or compatible to emulate an IBM 5251 or 5291 terminal when connected to an AS/400, according to the company.

The price for the multiport Series II Twinax with 5250 software ranges from $1,495 to $3,595. The single port Series III Twinax with software is $1,195.

KMW
6034 W. Courtyard Drive
Austin, Texas 78703
512-338-3000

Electronic mail

H&W Computer Systems, Inc. has released Version 6.2 of Sysm, an IBM CICS-based electronic mail system.

The product has been enhanced to provide word-wrapping techniques; a spelling checker and dictionary; and calendar and scheduling capabilities, the vendor said. Other features include alternate user support, bulletin boards and user statistics.

Sysm 6.2 is priced at $19,000 and $10,995 and runs under IBM VMS or DOS with CICS. A free-trial program is available.

H&W Computer
P.O. Box 15190
Boise, Idaho 83715
208-385-0336

Computer Associates International, Inc. has introduced a version of its CA-PC Email File Transfer package.

According to the vendor, the electronic mail program permits mainframe and personal computer users to access documents created by popular word-processing packages and distributes them throughout an organization. Release 1.2 is said to support the conversion of Wordperfect Corp.'s Wordperfect, Micropro International Corp.'s Wordstar, IBM's Displaywrite and other packages from native format to CA-PC E-mail format.

The product costs $195 and runs under IBM CICS in MVS or VSE environments, MVS/TSO in MVS environments or VM/CMS.

CA
711 Stewart Ave.
Garden City, N.Y. 11530
516-227-3300

Modems/ Multiplexers

Network Software Associates, Inc. (NSA) has unveiled a multifunction V.32 communications board.

The Adaptmodem V.32 reportedly combines a full-duplex synchronous modem, an asynchronous modem and a multiprotocol Synchronous Data Link Control adapter on a single plug-in board.

The device supports communications speeds up to 9.6K bit/sec. and was designed specifically for IBM Systems Network Architecture communications, according to the company.

The Adaptmodem V.32 costs $1,295.

NSA
22982 Mill Creek
Laguna Hills, Calif. 92653
714-768-4013

Gandalf Data, Inc. has introduced a 19.2K bit/sec. full-duplex leased-line modem.

The LDM 192 reportedly operates over unconditioned four-wire 3002-type leased lines and was designed for distances of up to 200 miles. It handles point-to-point asynchronous and synchronous applications and costs $2,695.

Gandalf
1020 S. Noel Ave.
Wheeling, Ill. 60090
312-459-9348

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Brentwood, New York Long Beach, California
For Information:
516-243-0700
1-800-367-4361

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5 Chapel Hill Road, Short Hills, NJ 07078, (201) 376-3722

MANAGER'S JOURNAL

EXECUTIVE TRACK

Norman S. Himes, a 25-year MIS veteran of the banking industry, has joined **American Management Systems, Inc.** (AMS).

As vice-president and director of technology consulting services, Himes, 45, will be responsible for AMS' advice to financial services clients on new technologies. He will be based in AMS' regional office in Winter Park, Fla.

Himes was most recently senior operating officer at Citicorp Savings of Florida. Before that, he was chairman and chief executive officer of Sun Bank Services Corp. — now Sun Trust Services Corp. — the consolidated MIS operations resulting from the merger of Sun Bank and Flagship Bank. Himes was president and CEO of Flagship Services prior to the merger.

Richard T.C. LeFave has been appointed senior vice-president and division manager of data processing operations and technical services at the **The Boston Co.**, a Boston-based personal and institutional investment banking services firm. He is responsible for managing the organization's data centers, all software systems support and international telecommunications.

LeFave was formerly the company's data center manager; previous positions included director of technology planning at Baybanks, Inc., MIS director of Nixdorf Computer Corp. in the U.S. and management consultant at Boeing Computer Services.

Donald Daniel has been elected senior vice-president of MIS at **Rapp and Collins USA/Dallas**, a direct marketing subsidiary of Omnicom, Inc.

Daniel joined Rapp and Collins in 1987 after 12 years in data processing-related positions with other Omnicom companies.

Proof that you can go home again

Weyerhaeuser's Mersereau returns to family, regional origins

BY JULIE PITTA
CW STAFF

PROFILE: Susan Mersereau

RICH FRISHMAN

Position: *Vice-president and general manager, Weyerhaeuser Information Systems*
Mission: *Running an independent business unit that supports both internal Weyerhaeuser customers and outside purchasers of software and computer services*

For Susan Mersereau, vice-president and general manager of Weyerhaeuser Information Systems (WIS), working for a forest products company is a return to her roots.

Mersereau's journey back to her birthplace in the state of Washington to work in an industry that employed both her maternal and paternal grandfathers could make an interesting subplot to *thirtysomething*, the TV program about the baby-boomer generation. Like many of the characters in that show, Mersereau left college in the late 1960s with the growing realization that society was changing and she along with it.

Like them, she is finding gratification two decades later by working within a corporate environment. Mersereau is charged with heading the information systems arm of the $7 billion forest products giant that faces the challenges of running a decentralized MIS organization. "I had a sense that a return to the Pacific Northwest would mean that I was getting away from making a contribution," Mersereau says. "I learned that you can make a contribution wherever you are."

With just eight years of experience in the corporate world, Mersereau, 42, heads an independent business unit formed in 1985 to sell services and software outside Weyerhaeuser Co. as well as to internal customers. Outside clients, including Coopervision, Inc., James River Corp. and Chevron Corp., account for about 15% of WIS' business. Mersereau manages a staff of approximately 400 people.

Mersereau graduated from Scripps College, a small university in Southern California in 1968. She and her husband were newlyweds headed for Chicago, where her husband would attend law school. They arrived on the first day of the Democratic National Convention, which erupted into a melee between antiwar protestors and the Chicago police. Newcomers to town, they watched it from afar.

However, she was not to remain an observer for long. Although her husband had law school, Mersereau's goals had not been clearly defined. "I had thought I wanted to stay home and have children," she says. "When I graduated from college, not many women went on to graduate school. It was a misdirected image. We were the first of the baby-boomer generation. We were still in a transitional mode in terms of our roles."

She took a job teaching in one of Chicago's inner-city schools. "It put me in touch with all the problems of that time," she remembers. "Chicago was a major shift in terms of my prior

Continued on page 85

PCs and *perestroika* in AMA course

BY CLINTON WILDER
CW STAFF

The closest translation of the word "management" in the Soviet Union is *upravlania*, which means "to steer." Yet later this month, a select group of Soviet management students will learn the basics of the personal computer as a business tool — from an American Management Association (AMA) trainer.

DAVID FLAHERTY

After two years of negotiations, the AMA will send senior program manager Susan Raskin to Moscow to teach approximately 100 students the fundamentals of random-access memory, spreadsheets, databases, word processing and graphics. In a three-day workshop, Raskin will also convey a sense of the PC as a management tool.

"You are the manager of your PC, no matter what your title is," she said. "You have to understand issues like productivity, self-training, security, maintenance and how to seek help. The course will interject those management principles."

The course will be taught at the Higher Commercial Management School on the outskirts of Moscow, which opened last October as part of Soviet Premier Mikhail Gorbachev's effort to boost the Soviet Union's foreign trade.

Students there are the Soviet equivalent of senior managers — those holding high-level or top positions in state enterprises. Most are university graduates, and some hold doctorate degrees, said AMA President and Chief Executive Officer Tom Horton. There are non-Soviet students as well.

The learning process will be a two-way street, according to Horton. "They're not quite sure how good we're going to be at this — we're not even on the learning curve yet," he said.

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TAKING CHARGE

Alan J. Ryan

Dressing for systems success

Allowing an outsider to plan your systems without user input is like letting someone tell you how to dress.

If you think paisley belongs only on elderly women's curtains and that polyester should be a name (Polly Esther) and not a fabric, it is a sure bet you won't wear it. And if your chief executive officer, high from a trip to fashionable Paris, decides to implement a dress code of polyester paisley jackets, it's also a sure bet you'll be miffed if you are not given the chance to object to the preposterous idea.

Likewise, if your company's systems need upgrading and you plan to call in a consultant to help with the plans, it should be a given that the consulting firm will work closely with the users to ascertain their requirements.

Users know best

Bringing in a new spreadsheet because the latest release of the one you currently use is not available yet or blanketing all the desks with PCs might be solutions the consultant can live with. However, those decisions might not necessarily be optimal for the users, and given the opportunity, they will tell you why. Perhaps some users need high-powered workstations rather than PCs, or maybe they are getting along just fine with the old version of the spreadsheet.

Still, some IS departments are stuck on the "father knows best" theory, believing that the users never really know what they need. In this increasingly computer-literate age, that theory is really getting threadbare.

In a Connecticut coast subsidiary of a New York-based public firm, the purchasing department hounded the systems group for months to bring in new systems and applications vital to its continued productivity.

Finally, consultants were brought in. As the weeks passed, the purchasers realized they would not be asked about their needs — the systems group was handling everything. When they insisted that they be granted a meeting with the consultants, they were given 30 minutes during the consultants' last day on site.

"Funny," said one materials purchaser, "we're the ones who have to work with these computers, and systems doesn't even care what we think." The new systems have yet to be implemented, so the purchaser is holding his judgment — for now.

Fortunately, many IS departments and top managers are realizing the importance of users and their ability to provide highly useful input to systems plans.

At Land O'Lakes in Arden Hills, Minn., Vice-President of Information Systems Gary Vanic said that in his decentralized IS department, talking to users is the only way to effectively create systems to help them meet their business plans. "When we don't do it, we get ourselves in trouble," he says. "When we do it, it is a unanimous success."

SOME IS departments are stuck on the "father knows best" theory, believing that the users never really know what they need. In this increasingly computer-literate age, that theory is really getting threadbare.

In some companies, the systems group might be likened to clothing consultants rather than clothing designers. The users decide on the look that they want to achieve, and the techies pull the appropriate hardware and software out of the closet to coordinate the outfit.

That approach works for the Gas Research Institute in Chicago, where users from all segments of the company are solicited for their help in designing systems that meet their needs. Hugh Naughton, director of information systems, said the users' input is so important that the company has a special committee of diverse users who meet monthly to share ideas and computing tips.

Paisley polyester or plaid rayon? Not unless that's what the users say they need to get their jobs done.

Ryan is a *Computerworld* senior writer.

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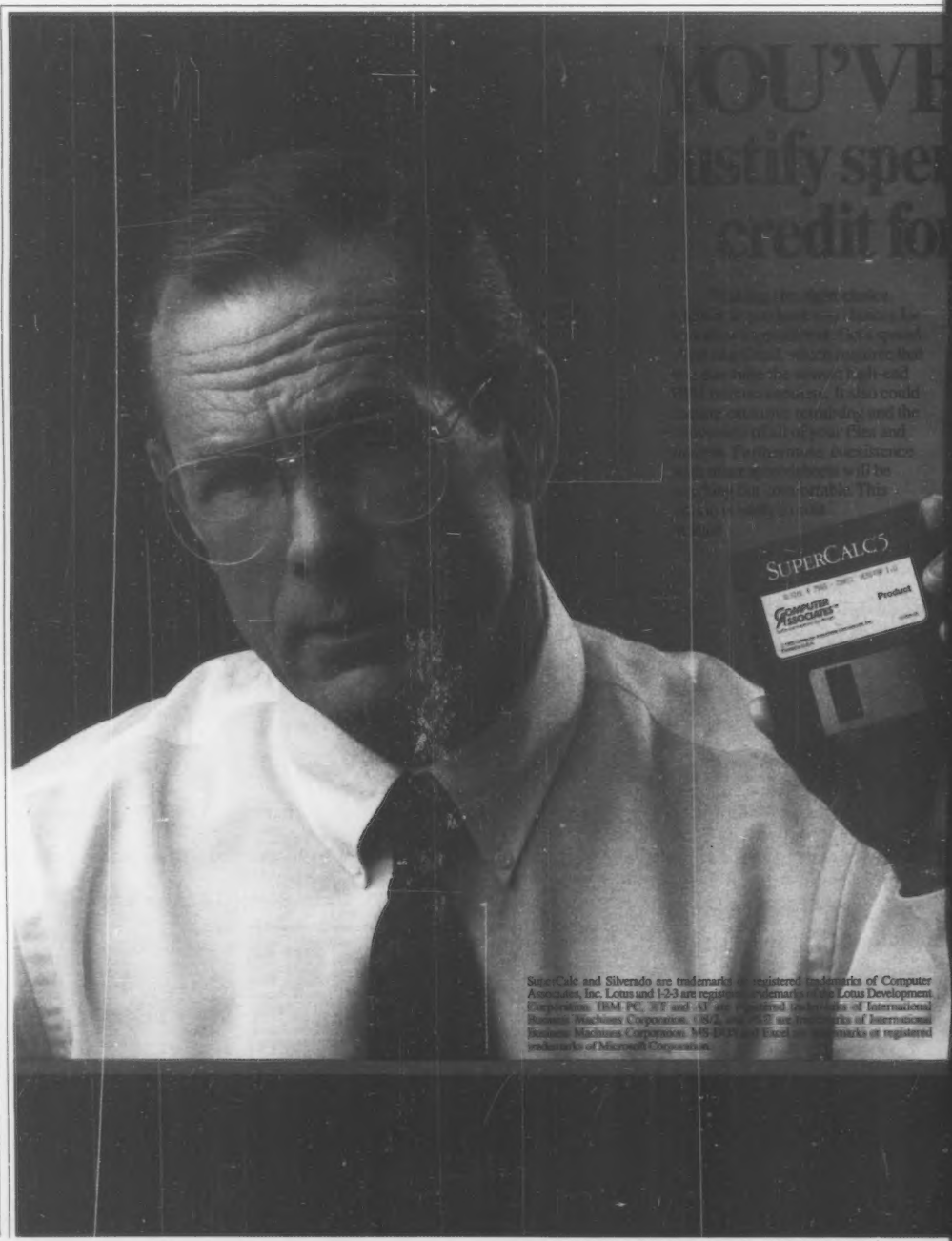

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CALENDAR

The importance of aligning information systems to a company's business is one of the hot management trends for 1989, and the Information Industry Association (IIA) has announced a conference to address one aspect of that trend.

The IIA's spring conference, called **The Art of Marketing with Information II: Strategic Lessons from America's Top Corporations,** will be held in New York, April 3-5.

The conference will include 50 senior executives of leading companies who will present case studies on how they use information to gain competitive advantage. Executives featured will be from companies such as American Express, AT&T, Eastman Kodak Co., Ford Motor Co., General Foods Corp., Ogilvy & Mather Direct and Pacific Bell.

William G. McGowan, founder and chairman of MCI Communications Corp., will be the keynote speaker at the conference.

For more information, contact the IIA at Suite 900, 555 New Jersey Ave. N.W., Washington, D.C. 20001.

MARCH 12-19

GUIDE International IBM User Group Meeting. Anaheim, Calif., March 12-17 — Contact: GUIDE, Suite 600, 111 E. Wacker Dr., Chicago, Ill. 60601.

North American ISDN Users' Forum. Gaithersburg, Md., March 14-16 — Contact: National Institute of Standards and Technology, Office of the Comptroller, A807 Administration Building, Gaithersburg, Md. 20899.

The Seventh National Conference on Measuring Data Processing Quality and Productivity. Orlando, Fla., March 15-17 — Contact: Quality Assurance Institute, 7575 Dr. Phillips Blvd., Orlando, Fla. 32819.

MARCH 20-31

Data Access Corp. Conference. Miami Beach, March 20-24 — Contact: Data Access, 14000 S.W. 119th Ave., Miami, Fla. 33186.

The Executive Information System Forum. Parsippany, N.J., March 21-22 — Contact: The EIS Institute, 174 Cabot St., Newton, Mass. 02158.

Neural Networks in The Real World Conference. San Jose, Calif., March 22-23 — Contact: International Planning Information, 465 Convention Way No. 1, Redwood City, Calif. 94063.

Conference on Innovative Applications of Artificial Intelligence. Stanford, Calif., March 28-30 — Contact: American Association for Artificial Intelligence, 445 Burgess Drive, Menlo Park, Calif. 94025.

ABCD's Spring Conference Events — Visions '89 and The Executive Business Simulation Program. San Diego, March 29-31 — Contact: ABCD: The Microcomputer Industry Association, 1515 E. Woodfield Road, Schaumburg, Ill. 60173.

APRIL 1-8

The 7th Annual Computer-Based Training Conference and Exposition. Nashville, April 2-5 — Contact: Martha Eversley, Weingarten Publications, 38 Chauncy St., Boston, Mass. 02111.

FUSE '89 — Focus on the Future. Reno, Nev., April 2-7 — Contact: The Focus Users Group, Fuse, Suite 4302, 450 Seventh Ave., New York, N.Y. 10123.

Expert Systems Conference and Exposition. Detroit, April 3-6 — Contact: ESD Headquarters, 100 Farnsworth, Detroit, Mich. 48202.

Unitech Systems Conference. Phoenix, April 3-7 — Contact: Unitech Systems, Software Products and Services, 3030 Warrenville Road, Lisle, Ill. 60532.

Patricia Seybold's Technology Forum. Object Orientation: Defining the End-User Platform for the '90s. Cambridge, Mass., April 3-5 — Contact: Patricia Seybold's Office Computing Group, Suite 612, 148 State St., Boston, Mass. 02109.

International Phoenix User Group Meeting. Nashville, April 5-6 — Contact: Goal Systems International, 7965 N. High St., Columbus, Ohio 43235.

APRIL 9-15

Tape Focus '89. Chicago, April 9 — Contact: Peripheral Strategies, B-200, 351 S. Hitchcock Way, Santa Barbara, Calif. 93105.

Comdex Spring '89. Chicago, April 10-13 — Contact: The Interface Group, 300 First Ave., Needham, Mass. 02194.

Electronic Imaging Conference West. Pasadena, Calif., April 10-13 — Contact: MG Expositions Group, 1050 Commonwealth Ave., Boston, Mass. 02215.

Macdex Spring '89 Conference and Exposition for Macintosh Products. Chicago, April 10-13 — Contact: The Interface Group, 300 First Ave., Needham, Mass. 02194.

International Computer Conference. Hong Kong, April 10-14 — Contact: American Federation of Information Processing Societies, c/o George R. Eggert, Suite 268, 2200E Devon Ave., Des Plaines, Ill. 60018.

APRIL 16-21

International Conference on Computerization of Medical Records. Anaheim, Calif., April 13-16 — Contact: Medical Records Institute, P.O. Box 289, Newtonville, Mass. 02160.

NCGA '89. Philadelphia, April 16-20 — Contact: National Computer Graphics Association, Suite 200, 2722 Merrilee Drive, Fairfax, Va. 22031.

Sterling Software's Systems Software Group Joint User Group Conference. San Antonio, April 16-19 — Contact: Sterling Software, No. 100, 11050 White Rock Rd. Rancho Cordova, Calif. 95670.

Connect '89. Boston, April 18-20 — Contact: Connect '89, P.O. Box 3833, 999 Summer St., Stamford, Conn. 06905.

1989 National Conference on Information Systems Quality Assurance. Orlando, Fla., April 19-21 — Contact: Quality Assurance Institute, 7575 Dr. Phillips Blvd., Orlando, Fla. 32819.

APRIL 22-28

IEEE Infocom '89: The Conference on Computer Communications. Ottawa, April 24-27 — Contact: Celia Desmond, Telecom Canada, Floor 5, South Tower, 438 Bay St., Toronto, Ontario, Canada, M5G 2E1.

National Design Engineering Show and Conference. Chicago, April 24-27 — Contact: Show Manager, Spring National Design Engineering Show, 999 Summer St., Stamford, Conn. 06905.

Advanced Manufacturing Systems Exposition and Conference. Chicago, April 25-27 — Contact: Cahners Exposition Group, Cahners Plaza, P.O. Box 5060, 1350 E. Touhy Ave., Des Plaines, Ill. 60017.

Federal Computer Conference West. Defense and Government Computer Graphics Conference West. Anaheim, Calif., April 25-28 — Contact: National Council for Education on Information Strategies, P.O. Box 41045, 901 West, 7315 Wisconsin Ave., Bethesda, Md. 20814.

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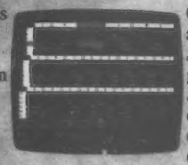

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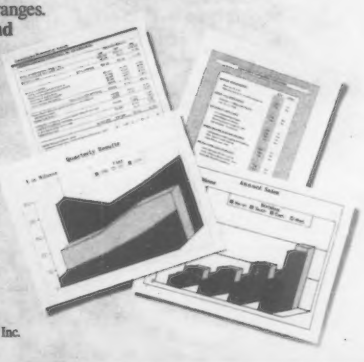

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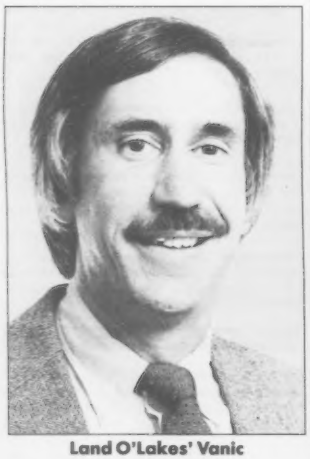
Land O'Lakes spreads value to farmers with systems tools

BY ALAN J. RYAN
CW STAFF

ARDEN HILLS, Minn. — The milk collectors face the frigid and clean Midwestern morning air as they have for the past 65 years; in their daily travels, they will reap a harvest of what will soon be churned into Land O' Lakes sweet cream butter. But unlike in the 1920s, computers are playing an ever-increasing role within the Land O'Lakes of today.

Land O'Lakes, Inc. is a cooperative business, owned by 1,400 farmers' cooperatives in eight states and, in turn, some 175,000 farmers. The business thrives on many products other than butter: Nationally, Land O'Lakes is also known for its cheese products. In the Midwest, the company is involved in milk, ice cream, hot dog and turkey businesses, and within



Land O'Lakes' Vanic

farming communities, Land O'Lakes is a major player in the seed, animal feed, fertilizer and agricultural chemicals areas. The company also has holdings in the petroleum business, from oil exploration to refining and retailing the oil.

During the last several years, Land O'Lakes has undergone many changes, and the 200-member information systems team has played a major role in those changes.

"We've decentralized the systems development, and that makes the development groups very responsive to the particular needs and priorities of each of the businesses," said Gary Vanic, vice-president of information systems. The decentralization also applies to the systems funding for the businesses, he said.

Churning issues

"People think that because you're not a public stock organization, you're immune to public stock-type pressures," Vanic said, "but given the macroeconomics of the farm economy, we get the same kinds of pressure to restructure and make things happen for our owners as well."

The U.S. farm economy woes have been reflected in Land O'Lakes' business with flat sales during the past six years, Vanic said. However, the company is growing through ventures and alliances that have brought about cost consolidation, and its profit margins have grown in the past two years. "You've got to keep changing or you're going to die in this business," Vanic said.

In 1987, Land O'Lakes reported sales of $2.2 billion and profits (which the cooperative refers to as net margins) of $12.4 million. In 1986, the company had slightly higher sales than it did in 1987, but net margins were just $10.1 million.

Vanic's mandate is to bring value for the farmers, and his tools are systems. Part of the value comes in the form of strategic mergers and ventures with other cooperatives. In one of its largest alliances, Land O'Lakes got together in 1986 with Cenex, Inc., another Midwest cooperative with $1.1 billion in revenue. Vanic said the trade territories of both cooperatives overlapped almost perfectly, and both companies have feed business, petroleum business and agronomy (fertilizer and chemicals).

Three joint ventures formed

The cooperatives agreed to pool their assets for the similar businesses and formed three joint ventures: one for feed, to be run by Land O'Lakes; one for petroleum, to be run by Cenex; and one for agronomy, to be split evenly between the companies.

With the agreement set, Vanic had just weeks to get the systems up and running for a Jan. 1, 1987 deadline. "We had 10 weeks to disassemble $2 billion worth of businesses from a systems standpoint and put them back together in a much different form," he said. The result was a success, and Vanic credits much of that success to a great deal of top-down support from the companies' presidents, Land O'Lakes' Ralph Hofstad and Cenex's Noel Estenson.

Vanic said that while the venture with Cenex saved money for both parties, the companies began looking for other areas in which consolidation could be applied. One targeted area was systems. "In

Towers of babble.

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May 1987, we put the systems organizations of both Cenex and Land O'Lakes together," he said.

"When we got done, we had reduced our costs in IS about 30% overall and improved our response time," he added.

Serving two parents

Early retirements and some layoffs helped to reduce costs, he said, and the current systems group has an approximately 50-to-50 ratio of Cenex and Land O'Lakes employees. "Now we're serving two parent corporations in a joint venture of IS organizations," Vanic said.

Systems enhancements in recent years at Land O'Lakes include improved order entry in all areas and software applications used on PCs at the local farm cooperatives to help farmers keep abreast of new developments in agricultural chemicals and fertilizers.

In hardware, Land O'Lakes headquarters is the home to an IBM 3084 QX, a Hewlett-Packard Co. Spectrum 8 and 1,000 PCs. Outside, there are many minicomputers at various plants and feed mills and an IBM Systems Network Architecture network connected to 2,500 terminals.

From the Land O'Lakes headquarters to Cenex headquarters 17 miles away at Inver Grove Heights, Minn., the companies are running a microwave system to share data. As a backup, they use Hyperchannel from Network Systems Corp., which runs at T1 speeds over terrestrial lines between the buildings.

Home again

CONTINUED FROM PAGE 79

experiences, but I had always been adventuresome. It was another opportunity to learn about people." At the same time, she attended graduate school at the University of Chicago.

During her two years of teaching, she faced the frustrations inherent in schools that are short on resources but long on need. "You can't deal with teaching without dealing with food, with health care and with the welfare system," she explains. "I wrestled with how you intervene in the system."

Eventually, she discovered that she was more suited to administrative work than teaching. "I'm very results-oriented," Mersereau says. "A lot of the time with teaching, you don't see the results of your work. I needed it to be more immediate and concrete."

At the University of Illinois at Chicago, she became a program coordinator of a project to educate Hispanic teachers and employ them in the community. It seemed that she had found her niche. However, Mersereau's husband had finished law school and landed a job in Washington, D.C.

In Washington, Mersereau continued to work on behalf of education, this time with the Department of Health, Education and Welfare (HEW). At HEW, she researched special educational programs to determine if they were eligible for federal funding.

Washington, D.C., turned out to be a shorter stint for Mersereau and her husband than Chicago. The two discussed a move to Seattle, close to where Mersereau had grown up. "We had a joke with our friends who were from Seattle: 'The last one out of Seattle, turn out the lights,' " she recalls. Yet Mersereau and her husband were one of 12 couples in their circle that migrated back to the state of Washington.

> "I'M VERY results-oriented. A lot of the time with teaching, you don't see the results of your work. I needed it to be more immediate and concrete."
>
> SUSAN MERSEREAU
> WEYERHAEUSER

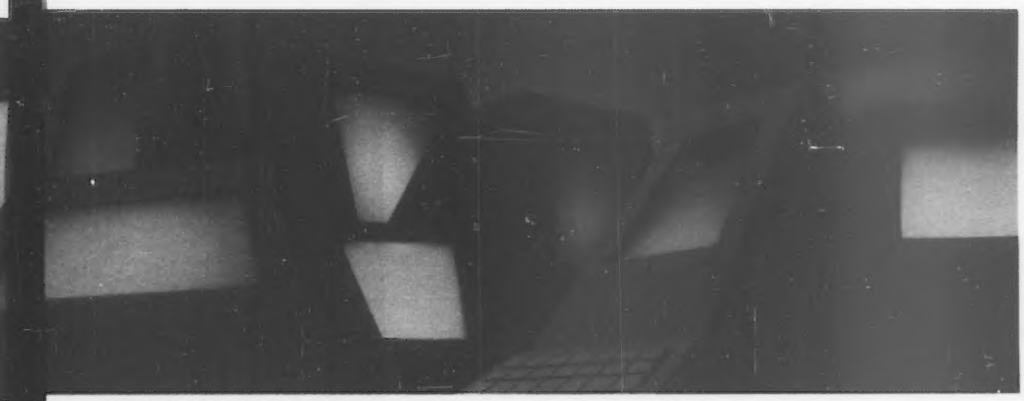
In Seattle, she took a job with the local school district. It was there that she first began working with computers. Seattle was faced with a shrinking student population and the need to implement a mandatory integration program. Computers were used for large-scale demographic simulations. "I've always looked at computers, then and today, as a tool to help us solve problems faster and more efficiently," she says.

Mersereau spent seven years with the Seattle school district. In 1980, she took her first corporate job as manager of advanced technology at Weyerhaeuser, but the transition was not traumatic. After some research, she had determined that Weyerhaeuser had a record of social responsibility within the state of Washington.

"I had pretty much achieved what I wanted to do in the public sector," Mersereau explains. "I grew up in a business environment; the whole forest products industry is not foreign to me."

Today, Mersereau is divorced. She juggles her free time between her 14-year-old daughter, her demanding job at Weyerhaeuser and various committees. She sits on the Governor's Board for Information Services, which advises the state of Washington on ways to implement technology. She also serves on a board that supports new forms of dance and art.

Her assessment of her life sounds like a maxim for the 1980s: "You start out on one path and you explore and test until you find out what works and doesn't work for you."



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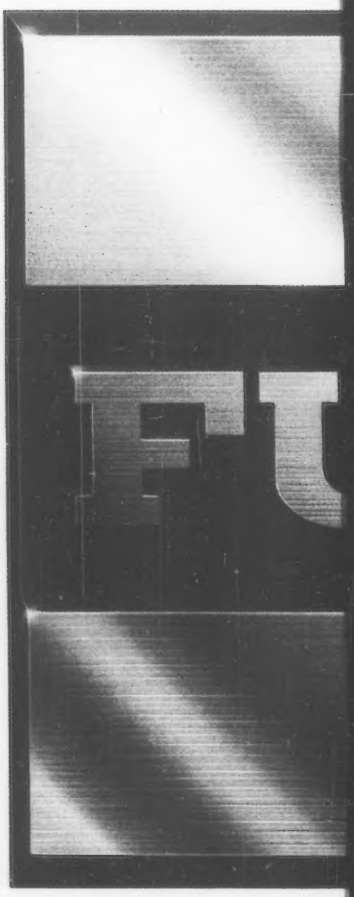

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The debate over project proportion

BY GARY ROBINS

When Tom Giammo stepped into the job of assistant commissioner of information systems at the U.S. Patent and Trademark Office (PTO) in 1986, that department's automation efforts were in shambles.

The General Accounting Office (GAO) had just released the findings of a study on the endeavor, and they were not pleasant. Among the black marks noted were inadequate oversight, cost escalations and schedule delays of two to three years.

There was no person who could be faulted for this unfortunate situation, according to Giammo. Although human error was certainly a factor, the real cause of the Patent Office's automation dysfunction was the assumption that planning should be done on a grand scale.

"To think you can write down the requirements ahead [of time] is the first and probably the most significant mistake you can make," Giammo says.

His sentiment flies in the face of what has been a prevailing practice in the federal government for many years. Comprehensive and long-term have long been the preferred modes for information systems acquisition and installation.

Recently, however, the grand design or big bang approach has been called into question in many quarters.

In a grand design scenario, an agency or department undertakes a large and complex project and attempts to combine all requirements — data processing hardware and software, communications systems and related technologies and services — into a single procurement.

As the General Services Administration (GSA) pointed out in a critical report titled "An Evaluation of the Grand Design Approach" and published in September 1988, there are many problems with this approach. One is that the grander the scope of the project, the larger the list of requirements and the more time it takes to put together a request for proposal (RFP). As a result, an agency may take a year or more to write the requirements, up to two years to go through the procurement process, and three years may pass before the work starts.

Managing such projects is also problematic, the GSA points out. One reason is that the average job tenure for top managers is shorter than the span of the average grand design project. Also, oversight for these projects is often delegated to managers at lower levels, who lack the experience and power to make decisions.

These and other factors, the GSA's report suggests, have contributed to excessive dependence on the services of systems integrators.

In its report, the GSA stopped short of saying that the grand design approach was totally unworkable. What it did say, however, was that "The odds are against it."

Francis McDonough, deputy of the GSA's Information Resources Management service, argues that any project should be measured by three criteria: "Whether it comes in on time, whether it accomplished what you said it would accomplish and whether you did it within the dollars." He says, "Those are three fair measures, and, based upon those measures, you have to look long and hard to find a successful [grand design] project."

The message that the GSA was trying to send in its report, McDonough claims, was simply that it might be time to consider alternatives. "Maybe we should learn from experience and adopt a little detour in the road," he suggests.

The specific direction that the GSA recommended was toward a more modular and incremental approach.

After surveying his own department's troubles, Giammo reached roughly the same conclusion. Instead of trying to encompass everything that needed to be done in a single swallow, he decided to set up a process that was based on smaller "gulps."

Actual production systems are now rolled out at the PTO on a limited basis and then evaluated based on user feedback. After each gulp has been digested, the PTO either issues a task order for the next release or institutes new requirement studies.

The premise is that the original requirements can be significantly improved through feedback based on experience. "You don't get people to rethink their jobs unless they have the real thing in front of them," Giammo says.

Building sufficient flexibility into the design process and contracts can yield significant rewards, he adds. As an example, he points to the fact that, while zoom capability was rated a high priority in the initial planning for a patent-search application, actual use revealed the feature was less necessary than expected.

This discovery meant that the patent application did not require the expensive fast storage that had been planned. Giammo's point is that he could not have known this at the outset; without a special contract, the initial requirements would have been the final requirements.

Of course, proceeding in this fashion is not without problems. For one thing, Giammo says, there is significant pressure in the federal government to go the grand design route.

"The classic approach is implicit in a lot of the regulations

MANUELLO PAGANELLI/WOODFIN CAMP

GSA's McDonough *advises veering from the grand design way.*

Robins is a free-lance writer based in Northfield, Minn. Assistance was provided by Mitch Betts, *Computerworld's* Washington, D.C., bureau chief.

INSIDE

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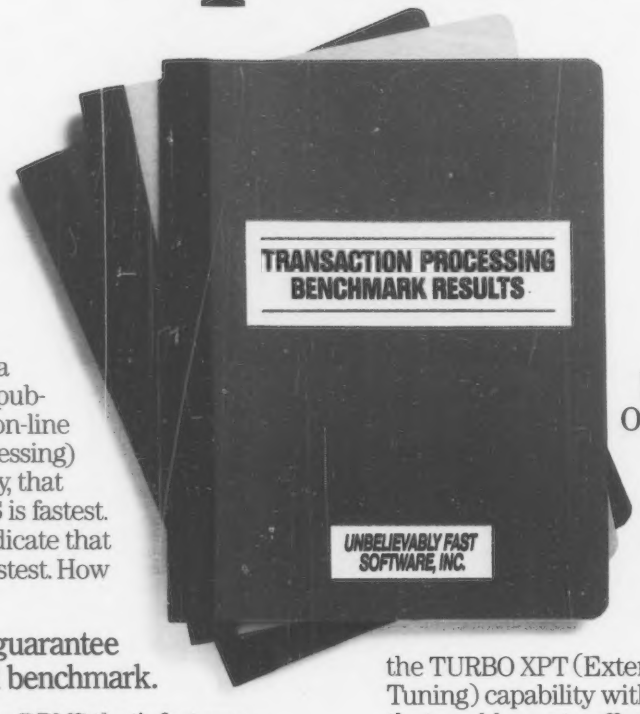
Others talk about database speed.



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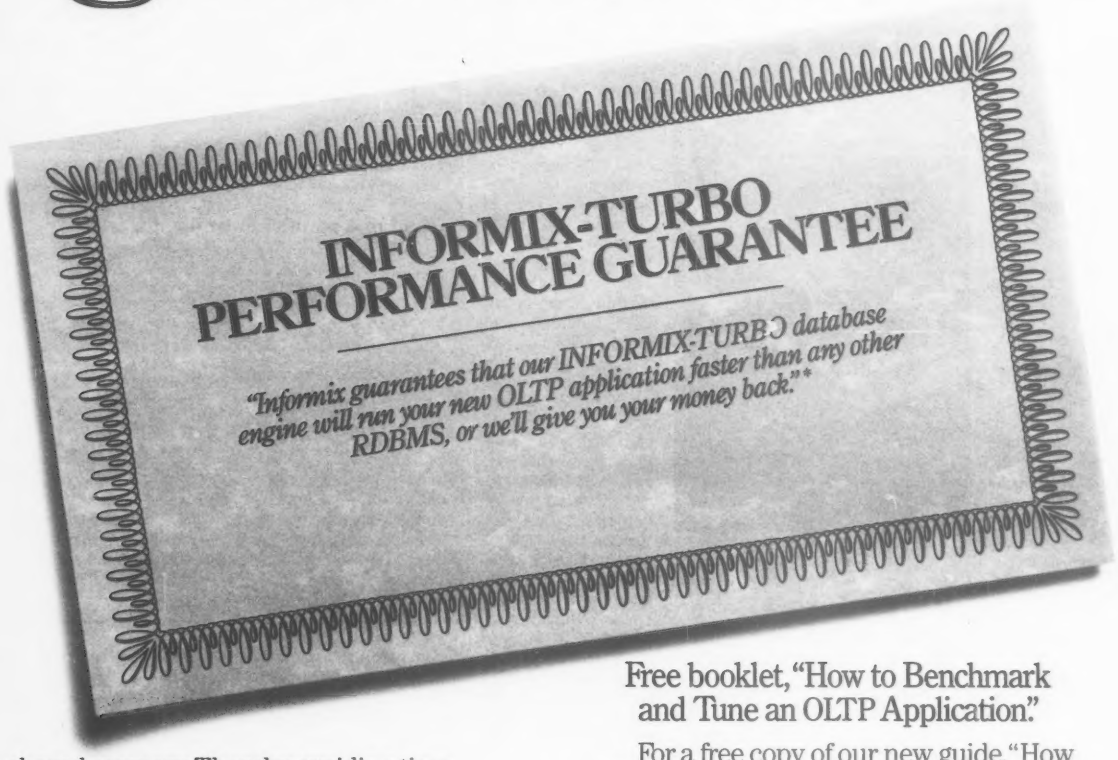

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Debate

FROM PAGE 87

that you deal with," he notes. It is difficult to get money for a project unless precise numbers are offered. Budget examiners, for example, need to have exact numbers three years in advance.

From the budget examiners' perspective, Giammo says, if you do not know exactly what functions you are going to have, what equipment you are going to use or how many of something you want to buy, then you basically do not know what you are doing: "You lose credibility in their eyes."

Lee Mercer, deputy undersecretary for export administration at the Department of Commerce, has also encountered the pressure to think big. There has been a strong bias toward grand design, he says, both within his own agency and in the federal government as a whole.

Mercer is in the unique position of being able to compare the results of both approaches, because he tried both methods in an attempt to solve some major bottleneck problems at his agency.

Inherited trouble

When Mercer took office in July 1986, the Commerce Department was manually processing 100,000 export licenses per year. There were major complaints about delays in the license program and the responsiveness of the department. License approval was taking too long, and exporters could not get through on the telephone to find out the status of their licenses because the phone lines were always busy.

Everyone agreed that a new system was needed. What they could not agree on was how much of the problem to tackle at once.

"There was a stalemate here," Mercer says, "between the people who were insisting on a grand design effort and those who wanted to make some discrete incremental improvements to the system."

As a compromise, Mercer agreed to go ahead with the grand design plan if he was allowed to make incremental improvements in the meantime.

In July 1986, the export administration started down a two-track path — the process of developing a grand design was started, and Mercer began making some modular changes in the current system.

The grand design route proceeded as follows. It took until the end of 1986 to get the proposal out for a consultant to study the problem. One was selected in April 1987 to work on the study that would be needed in order to generate an RFP. A little more than a year later, in May 1988, the consultant delivered the study in seven volumes. The cost was $700,000 for the study plus internal costs for a four-person internal consulting team that was assigned to work on the project almost exclusively.

His evaluation: "If I had gone grand design, I would have been faced in May, almost two years out, with no changes — zero changes — in an export-licensing system that everyone was saying was absolutely wrong."

During the same period of time, Mercer had begun to tackle some of the export administration's problems on a priority basis.

The biggest complaint involved the telephones, so the decision was made to install a computerized voice-response system. This entailed buying two Digital Equipment Corp. minicomputers and a voice synthesizer, interfacing the minis to the department's mainframe and installing a 32-line call system.

MANUELLO PAGANELLI/WOODFIN CAMP

> "IN THE TIME it took to have a contractor deliver seven volumes telling us what kind of work we did here and how we might automate it, we automated it."
>
> LEE MERCER
> DEPARTMENT OF COMMERCE

Mercer cut time from the procurement cycle by using available funds, modifying existing contracts and using contracts for small-business or minority business set-aside programs. These allowed him to avoid the lengthy competitive-bid process.

The revamped phone system was operational by October 1986, Mercer says, and the return on investment was immediate: The department went from answering only 25% of its calls to picking up 100%, Mercer maintains.

The next priority was to speed up the licensing process by automating data entry. This was to be accomplished by installing optical character readers (OCR) to scan hard copy and a direct entry system based on computer-to-computer data exchange.

Work started on an RFP for the OCR project in the fall of 1986; the contract was awarded in the summer of 1987. The electronic data transaction was started in the middle of '87. Both systems are now operational, Mercer says, and have eliminated 95% to 98% of manual data entry previously required at a savings of $600,000 per year. The cost for both systems was less than $300,000.

Other incremental improvements were made at the export administration during the same time frame. An automated search program was written in-house to make better use of the database, and all licensing officers were given terminals.

"In the time it took to have a contractor deliver seven volumes telling us what kind of work we did here and how we might automate it, we automated it," Mercer points out. "If I had taken that grand design [approach], I still wouldn't have a contractor on board. The process would have stretched into 1991 — at least three years behind our own major automation of the system."

Mercer does not question the quality of the grand design document or its recommendations, which were similar to those that he implemented, but he does object to the time consumption inherent in the process. Grand designs lead to an all-or-nothing approach that forces users to wait years for results, he says.

There is another side to the discussion. Grand design proponents argue that, for many projects, settling for less than a big and complete picture prior to procurement is a drastic mistake, because what you wind up with is a system in which the pieces do not fit together.

Lon Rosenman, senior principle at Cap Gemini America's national management consulting group, points to a Department of Agriculture project to automate all county offices, which involved more than 2,800 minicomputer-based systems, rewiring, communications and software. In that particular case, he says, grand design was the best way to go, as it was the most efficient way for the department to connect all its offices at one time.

Rosenman does not contend that all large efforts demand large and unified design plans.

"I have seen a number of situations involving proposals for very large information systems," he says, "where it was realized after the fact that, although the objective should remain, implementation on a piece-by-piece basis would probably have been better . . . would have yielded a much greater return on investment, responded to immediate needs and allowed for changes to reflect actual user requirements."

Significant semantics

The distinction that Rosenman makes between design and implementation is significant. Many defend the idea of a grand "design" but yield on the idea of a grand "implementation."

The Office of Management and Budget (OMB), which advises the president on resources for all investments in technology and makes policy on federal information technology, also applies the distinction. The OMB's view is that implementation and procurement are separate issues from planning and design.

"I'm not sure I know of any case where grand design is a bad idea," says an official at the OMB's Office of Information and Regulatory Affairs, "but I know of very few cases where a grand implementation would make sense."

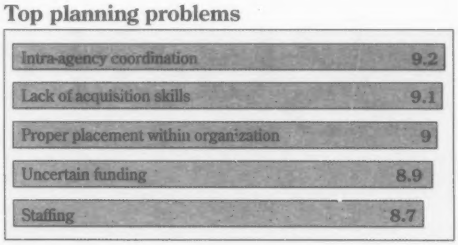
That official laments the general tendency to lump the two subjects together. "The title, if not the substance, [of the GSA's grand design report] leads one to conclude that grand designs lead to dreadful consequences," he says. "Unfortunately, there is a confusion between grand designs, of which I am in favor, and grand implementations and grand procurements, which can often be disasters."

The disasters happen, he explains, when agencies turn projects over to contractors with instructions to come back in 10 years with completed systems. If you abdicate responsibility in that way, he says, it will not be apparent until the system is delivered — or more often, not delivered — that the implementation may have been flawed or

Kinks in the grand design

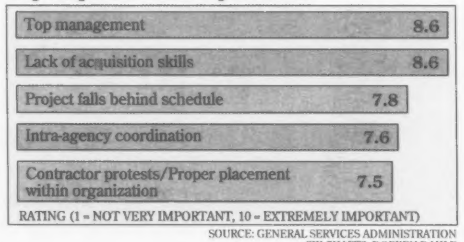
In interviews conducted for a GSA survey, respondents were asked to rate the criticality of certain problem issues that surface frequently in the course of a grand design project. The rankings that resulted were not linked to actual problems experienced by users but to the importance that respondents assigned to the issue involved. What follows is a description of the top concerns surrounding the planning and implementation phases.

Top planning problems



Other issues that were close runners-up in the planning category include difficulties with the OMB, unrealistic time schedules set by others and audits by the GAO.

Top implementation problems



RATING (1 = NOT VERY IMPORTANT, 10 = EXTREMELY IMPORTANT)

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In the implementation phase, only one other implementation issue came close to the top five — the same problem of unrealistic, externally imposed deadlines that troubled agency officials in the planning phase.

that the assumptions no longer make sense.

What the OMB prescribes is not just to break implementation into smaller chunks but to define the chunks to provide interim capabilities. That way, if the initial design had some flaws or assumptions have changed, the agency can make adjustments.

As a demonstration of its contention that phased implementation and grand design are not mutually exclusive, the OMB offers up the example of the Federal Aviation Administration's (FAA) air-traffic control system, which is one of the presidential priority systems selected by the OMB for high-level attention. That system cost $2.3 billion in 1988 and is expected to cost approximately $17 billion over 20 years.

"The FAA has a rather substantial long-range vision," the OMB official says. "I wouldn't call it a plan, because a plan suggests some metric precision about what is going to happen, but it is clearly a design of what the air-traffic control system ought to look like. On the other hand, it has been proceeding in a modular fashion. Several years ago, it embarked on upgrading regional centers. Recently, it awarded a major contract to replace the controller workstations in the on-route systems."

> "HAVING A modular approach does not make any sense if you don't know how all the pieces are going to fit together."
>
> ROGER COOPER
> FHA

Other federal information managers share the OMB's view. Roger Cooper, deputy administrator of management at the Farmer's Home Administration (FHA), says he believes that the grand design concept is essential. "Having a modular approach does not make any sense if you don't know how all the pieces are going to fit together . . . but you don't have to do them all simultaneously under one contract." Cooper indicates that there should be an overall global design document to show how all the parts are going to fit together.

Piecemeal practice

A more recent convert is the Defense Logistics Agency (DLA). Rather than award a single systems integration contract for its $1 billion data management systems upgrade project, as had been planned, the agency anounced in late January that it had decided to perform its acquisitions on a project-by-project basis.

The change in implementation strategy, says Jean Lakey, program manager of the project, was prompted in part by discussions with the U.S. Air Force, Navy and Army on lessons learned about implementing large projects.

Other factors weighing in favor of a staged and internally managed approach, she says, were the following:

- Concern that any problem in one part of the single-implementation project could hold back the entire program.
- Interest in speeding the development of critically needed system components.
- The potential difficulty of having to justify the aggregate cost of 17 separate computer systems to Congress.

According to Lakey, managing the program in bite-size pieces just made more sense in light of all those considerations, but the overall plan — the grand vision — has not changed, just the implementation.

"We still have an umbrella program, and we're making sure that all of our projects will be integrated under that program," she reports.

Catch the wave

The GAO, the independent auditing arm of Congress, is doing its best to ensure that more federal information systems groups follow Lakey's lead. A GAO report released last November titled "Information Technology Issues" did not discuss the size or scope of projects as contributing factors in the project failures cited; instead, it concentrated on how inadequately defined requirements and unsound management practices helped sabotage the projects.

However, one GAO official says that the agency is, indeed, anxious to encourage modularized implementation. "Most projects are not [proceeding in this fashion]," he says, "and that's what we are

Breaking a classic mold

As a tool used to identify an entire category of systems undertakings, the term "grand design" is not the most precise descriptive instrument.

The GSA's report, "An Evaluation of the Grand Design Approach," defines the type as a large computer application system in which all possible requirements — software, hardware, data communications, telecommunications and all related services and technologies — are aggregated.

While grand designs are assumed to be a common part of the federal business process, making a grand design tag stick to any project can be a problem. The same large project can be labeled grand design by some and not a grand design by others.

For example, an Air Force project, Phase IV, which started in the early 1980s and ended in 1985, upgraded computer systems in 160 Air Force bases worldwide. The project was carried out by a single systems integrator, Sperry Corp. (now Unisys Corp.), and involved not only replacing hardware but also converting 10 million lines of existing code. The life cycle value of the project was $800 million, according to Andrew Bilinsky, former deputy assistant secretary of the Air Force for Command, Control, Communications and Computer Systems. While some call this project a successful grand design, others say it doesn't fit the paradigm because it did not involve new applications.

While the term "grand design" may not be a precise instrument, it may be most effective as a blunt instrument to get people to think about the way they have been approaching systems design.

Not all big-dollar computer procurements are grand designs. While the $1 billion-plus Air Force Computer Acquisition Center 251 contract for as many as 20,000 Unix platforms is large and includes both systems and application software, it is basically a hardware buy and thus does not fit the grand design mold.

Conversely, smaller dollar projects — those less than $100 million — are not excluded. The GSA's Francis McDonough explains, "When I started out, I thought that grand designs were systems of $100 million and above. But you can have a grand design in a small agency that [ends up being] too big for the agency to undertake."

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trying to stop."

As an instance of successfully applied influence, the official cites the Army/Navy/Air Force-sponsored $1.1 billion Trimus, or Tri-Service Medical Information Systems, project for automating military hospitals.

Although the initial intent was to award the Trimus contract in a single package, the GAO intervened and was able to convince senior management in charge of the project, which is under the jurisdiction of the undersecretary of defense for medical affairs, that it would be more practical to install and test incrementally in a limited number of facilities. "What we've been able to do," the official points out, "was to say that it doesn't make sense to send [the product] out to 600 places and have 600 problems."

The more you listen to opponents and proponents of grand design, the more it seems that reconciliation is not far off. In many instances, the debate is really more about wording and definition than practice.

All-encompassing is out

Few federal information systems managers are apparently in favor of perpetuating the classic systems development approach that the GSA says leads to grand designs — one that advocates defining all the requirements up front and then executing a single and final design.

FHA's Cooper, for example, characterizes system development as a sequential process, and his description sounds very much like what PTO's Giammo is doing.

"What we are arguing for," Cooper says, "is a more iterative process that results from doing prototyping. On a billion-dollar system, I would hate to think that there was going to be one giant contract that assumed you knew what you were going be doing three or four years from now."

According to Cooper, there is a movement within the federal government to increase prototyping. Rather than fix requirements in time, a prototype would be constructed to solicit feedback from users, and then the requirements could be refined and the prototype could be expanded.

Like Giammo, Cooper says this will help to pinpoint what the users want as opposed to what they *think* they want and weed out the bad ideas.

Furthermore, those who object to the points made in the GSA's report on grand design might find some comfort in another study that agency released a month later. Prepared by American Management Systems, Inc. (AMS), an Arlington, Va.-based systems consulting and development firm, this study analyzed 18 major systems modernization projects in 18 government organizations.

Although the theme of reduced scope as a goal for federal information systems projects also resounded strongly in this publication, the suggestions were somewhat more muted.

"We were finding that in many of the programs, the scope was just too large and that they were failing because the scale of the effort was beyond that which the agency could successfully execute," says Larry Seidel, vice-president of AMS' federal civilian agency business.

> "ONE OF THE most important critical success factors we cited is the issue of properly sizing the effort and biting off the right amount."
>
> LARRY SEIDEL
> AMS

Many of the agencies, Seidel says, were not particularly successful in completing all or parts of their projects on time and within budget. To serve as guidelines for future projects, the study came up with 10 critical success factors for systems modernization, one of which was selecting the appropriate scope for the project.

Matching the effort

Seidel views the grand design-vs.-incremental debate this way: "It's not so much that either approach is always desirable. What's right depends on the circumstances. One of the most important critical success factors we cited, and one that goes to the heart of the debate, is the issue of properly sizing the effort and biting off the right amount. It says that grand design is right in some cases and incremental is right in other cases, but that the way to [determine] which approach is the right one is to assess the different risks of the alternatives."

The study recommends that senior management weigh the risks involved before the scale of the project is determined. The right way to approach a large project, Seidel says, is with this question: "What's the right scope to ensure an 80% to 90% success rate? I think that if you look at it that way," he continues, "you come out with a different looking project than the ones that have been historically embarked upon."

In fact, the AMS study found that the single most important critical success factor was not the size of the project but the amount of talent available to run the project.

Seidel says, "Our conclusion was if you don't have the talent, don't do the project. There is no substitute for talent, and that may be the true limiting factor on selecting the right scale of project." •

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Government takes lessons from the business sector

BY ESTHER SURDEN

Some government insiders and many on the outside looking in are convinced that government information systems can be run in a more businesslike manner. Their point has little to do with money management: "Businesslike" refers to the concept of aligning information systems with the larger goals of the organization.

Recently, it has become fairly common for firms to think about information systems as key to business strategy. Some consultants and information systems managers say such a unified approach is rare within government organizations.

This view, of course, does not go uncontested. Many government information systems managers say that their current planning methods do take agency goals into account. They argue strenuously for maintaining the status quo, saying that the five-year planning process already in place throughout most of the Information Resources Management (IRM) departments is enough, as are the triennial IRM reviews.

Agriculture Department's Haney

Glenn Haney, director at the U.S. Department of Agriculture, is one of those managers.

"Long-range IRM planning is integrated with both the agency's program planning and the entire budgeting process, and it forces people to orient IRM goals with the missions of each department. Everything that they want to support has to be mission-related," he says.

Nonetheless, consultants such as Coopers & Lybrand, which acts as a consultant and systems integrator for many agencies of the federal government, say there is room for improvement. That firm, for example, tries to foster more goal-driven planning among its government clients.

Coopers & Lybrand's Mucchetti

"We attempt to get an agency to take its mission statement, reduce it to goals and objectives and then identify the technical goals and objectives that would support those goals," says Steve Mucchetti, a partner in charge of federal systems.

The objective, he says, must be to design an information architecture that will meet all the needs of all levels of management; that means identifying functions, data requirements and interconnections and determining cost factors.

Peter G. W. Keen, executive director of the International Center for Information Technologies, a Washington, D.C.-based research firm, says what is needed is a more executive orientation in the job of information resources manager, an awareness of issues such as public perception and a vision of how information systems can enhance an agency's image through improved service. "You have to have an overall framework," he says.

What Keen is suggesting is something akin to a chief information officer, as long as the change of title represents a real change in responsibility and as long as the job is given to the appropriate person.

One of the few government information resources managers now carrying the new title is Janet Barnes. Barnes is a director of IRM and a CIO at Pension Benefit Guarantee Corp., a government agency that insures private pensions. She says she firmly believes a more businesslike approach is called for in government information systems management.

"The IRM function alone can be a full-time occupation," she says. But, she adds, "These people wind up worrying more about automation and beefing up data processing departments than anything else." What Barnes wants IRM departments to concentrate on is the overall picture — looking at the long-term benefits that information resources can provide.

Right now, she says, "Almost nobody is examining their agency's business, trying to figure out where that business is going and what information resources management needs [to do] to support it."

Barnes aims to be an exception. Although typical IRM tasks have consumed most of the year and a half that she has been at her job, she has begun to take a look at Pension Benefit Guarantee's strategic goals to see how information technology can support them. In fact, one project is already under way — a database consolidation effort that will make examining cases and handling public inquiries easier for staff members. •

Surden is a free-lance writer based in North Caldwell, N.J.

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How politics can pinch IS

BY PATRICIA CINELLI

No one who works for the federal government is totally insulated from politics. Information systems managers are no exception. Even though they are neither elected nor appointed, these individuals and their departments are affected by the tides of partisanship and public opinion that sweep through the capital.

Congressional and presidential elections can have a significant impact on the budgets and agendas of IS departments. If, for example, those elected or appointed to important posts are either not interested in technological investments or not aware that such investments make organizations more effective, information systems can stagnate.

That, some IS managers say, is what happened throughout the 1970s. During the Reagan years, by contrast, information technology was given higher priority. During the past 10 years, says Frank McDonough, deputy commissioner of Information Resources Management (IRM) at the General Services Administration, the government's entire IRM budget "almost doubled, from $9 billion to $17 billion."

Although the executive branch's IS policies are apt to change, they are stable compared with the system of political appointments that often forces IS managers to cope with half-finished directives and midstream changes.

"The biggest problem we see is when a political appointee leaves in the middle of a project and a new person comes in," says Howard Grandier, director of the Office of Software Development and Information Technology, a government department that provides assistance to other federal agencies in IRM technologies and acquisition. The new appointee usually "wants to study the project for six months and puts it on hold." The risk of such delays rises proportionally with the project's size and scope, he says.

Indecision and meddling are not the rule, however. On the positive side, many political bosses tend to leave technology issues to the experts.

Reed Phillips, director of IRM at the U.S. Department of Commerce, says political appointees are not usually interested in the details of technological projects. "Politicians," he says, "are usually preoccupied with other pressing issues."

Some initiatives from the legislative branch have been aimed at getting more qualified professional administrators into political-appointee positions. Now that the Veterans Administration has a Cabinet position, for example, its assistant secretary of administration must have some professional qualifications to hold that job.

Commerce's Phillips

Robert Head is not sure that the requirement will make the IS manager's job any easier. Head, president of Fedinfo, Inc., a Stafford, Va.-based firm that provides marketing consulting to federal systems vendors, suggests that a little knowledge can be a dangerous thing.

Whether political appointees are involved in day-to-day issues or not, their public image can affect the working environment of the IS department.

For example, when former Attorney General Edwin Meese became the focus of unfavorable publicity after being accused of unethical behavior, IS employees in the U.S. Department of Justice had to contend with the perception that political influence might be playing a part in the procurement process.

EPA's Hanley

Although Steven R. Colgate, deputy assistant attorney general of administration and information services at the Justice Department, calls these suspicions absurd, he says that the notoriety was sufficient to cause concern among vendors about the legitimacy of the department's purchasing procedures.

Some try to minimize the vulnerability of systems projects by modularizing their procurements. "We try not to make procurements too big," says Edward Hanley, director of IRM at the Enivronmental Protection Agency. "Instead, we try to have one [procurement request] for the system itself, one for the software and one for the computers."

Leasing equipment is another option many managers, including Hanley, use: "We do five-year ordering contracts, but, if we lease, we don't have to order it if we don't need it."

With change the only real constant within the federal government, information systems managers have no choice but to learn to adjust to the varying tides of partisanship and public policy. Such an adjustment might get easier with time, but it is never simple. •

Cinelli is a free-lance writer based in Washington, D.C.

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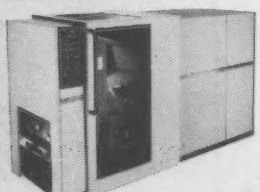

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Technologies for the future

BY ARNOLD S. LEVINE

In its just-released revision to its Five-Year ADP and Telecommunications Plan, the Office of Management and Budget (OMB) anticipates two trends in government information systems from now to the year 2000. Most obviously, the amount of computing power needed by federal agencies will continue to grow. Second, the OMB says, the technology purchased during the next few years "will change the way we do business."

According to an official at the OMB's Office of Information and Regulatory Affairs, some of the technologies that the OMB expects to have the greatest impact on the way the federal government does business are database management systems, including text management; artificial intelligence; electronic data interchange (EDI); and special-purpose and scientific computing. Federal agencies will be turning more and more to electronic databases to handle geographic information, to AI for decision support tools and to EDI for the mundane jobs of processing financial transactions and expediting procurements.

OSDIT's Grandier

EDI, the official notes, will be "terribly important" for automating many processes that are currently very labor intensive.

Furthermore, he adds, the kinds of scientific computers and specialized workstations that are now used in government laboratories for highly specialized applications will soon be tapped for more generalized uses.

In the short term, "scientific computing will have real-world applications," he explains.

Mass storage critical

Howard Grandier, director of the government's Office of Software Development and Information Technology (OSDIT), says technologies that enable managers to store huge amounts of data will soon become crucial. Developments in optical disk mean that "you could have all the data for the U.S. Census on micro or CD, the way they do for music," he suggests.

Jim Unterspan, FLITE project manager at the U.S. Air Force's Legal Information Services office in Denver, has already found a use for mass storage in text management applications. FLITE, which stands for Federal Legal Information Through Electronics, is a general-purpose legal information system.

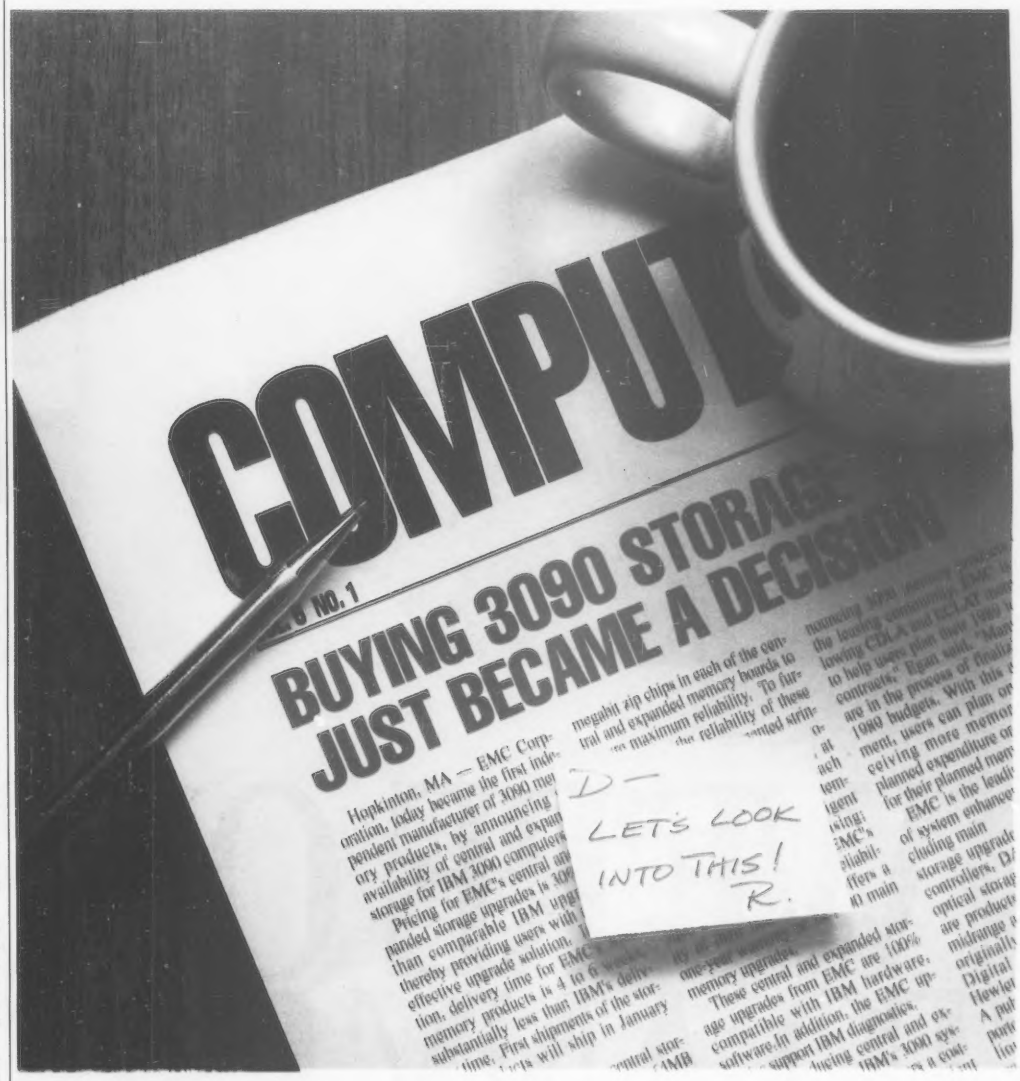
The Air Force is now using Inquire, a text management system from Pittsford, N.Y.-based Infodata Systems Corp., for two major information systems. The first, FLITE, installed late in 1986, contains more than three billion characters of text covering legislation, case-law treaties and other information relevant to military legal concerns.

The second system is currently in development; the Air Force Claims Information Management System will archive the tracking of all the legal claims in which the Air Force is involved.

FLITE, which resides on an IBM 4381 located in San Antonio, can be accessed by 1,300 Air Force attorneys in 350 separate offices through a CCITT X.25 public data network. By the middle of this year, Unterspan says, the Air Force plans to move

Continued on page 98

Levine is a free-lance writer based in Gaithersburg, Md., and a frequent contributor to *Federal Computer Week*.



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Technologies

CONTINUED FROM PAGE 95

FLITE to an IBM 3090 and extend service to all 5,000 lawyers working for the U.S. Department of Defense.

Grandier predicts — and the Air Force's expanding web of users implies — that networks of all kinds are a large part of the planning picture for government agencies.

"Two things we're sure of are that LANs are growing and that in-house wide-area networks linking the LANs will be next," says Don Black, a team leader in OSDIT's Federal Office Automation Center. Black envisions networks that can tie hundreds of workstations together through a mixture of fiber optics and twisted-pair copper cabling. Fiber optics will not supersede copper wiring in the short term, Black says: Copper is cheap and easy to manage and retrofitting is expensive. Fiber will, however, be important for backbones and secure networks.

A NUMBER OF agencies are using — or plan to use — EDI for accepting invoices from vendors, making payments, transmitting orders and generally reducing the time needed for the repetitive processing of nearly identical transactions.

Probably the most promising communications-related technology in the government's future is EDI. The official at the OMB is not alone in his assessment that EDI could significantly affect governmental efficiency.

That opinion is also expressed by Ben Milbrandt, formerly of Navistar International and now a fellow of the Logistics Management Institute in Bethesda, Md., a federally funded defense research center. Milbrandt sees EDI for transaction processing and electronic funds transfer as a major technology influencing government and industry.

A number of agencies are using — or plan to use — EDI for accepting invoices from vendors, making payments, transmitting orders and generally reducing the time needed for the repetitive processing of nearly identical transactions.

Among the agencies studying EDI applications are the Defense Logistics Agency, the General Services Administration's (GSA) Federal Supply Service and the Treasury Department's Financial Management Service (FMS). The goal for all these agencies is the same, says FMS Commissioner W. E. Douglas: "to wring the paper out of the system."

Douglas wants to use technology to automate the collection of taxes from businesses through electronic debiting of employer accounts and, hopefully, to cut down on the 300,000 errors that the current paper-based system produces annually.

AI to bloom

Another technology that is expected to blossom in the federal arena in the next few years is artificial intelligence. One fertile area for AI in government is systems development and maintenance.

The National Aeronautics and Space Administration, for example, is working with Los Angeles-based Inference Corp. to develop a knowledge base that would assist in the development of new mission-support applications." Grandier expects that AI-enhanced code generators and conversion tools will be heavily used at many agencies and departments interested in cutting back on systems development and maintenance labor.

Another task for AI in the federal government is in decision support. Agencies such as the GSA, which developed Executrac, an IBM-based executive information system, are using decision support tools to track progress within their agencies toward certain goals, set performance levels and schedule accordingly. •

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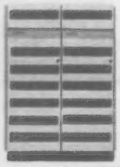

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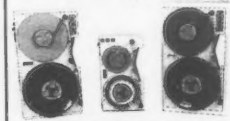

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Just say 'maybe' to systems integrators

Not all information systems projects need outside help, but IS executives should think twice before nixing that option

BY ALAN RADDING

"A systems integrator wants you to give him a check and let him run. That's insanity."

So says Jerrold Patz, director of information systems development for the Massachusetts Executive Office of Environmental Affairs in Boston. But Patz's feeling does not extend to banning systems integrators from his organization. He went with one. Eventually. Reluctantly.

The fact is that even IS organizations that make extensive use of systems integrators are not always enamored with the situation. The natural tendency is to want to do the job yourself. Nobody knows your IS organization or cares as much about your company as you do. It can be uncomfortable to turn over the responsibility and technical decision-making authority for a major information systems project to outsiders.

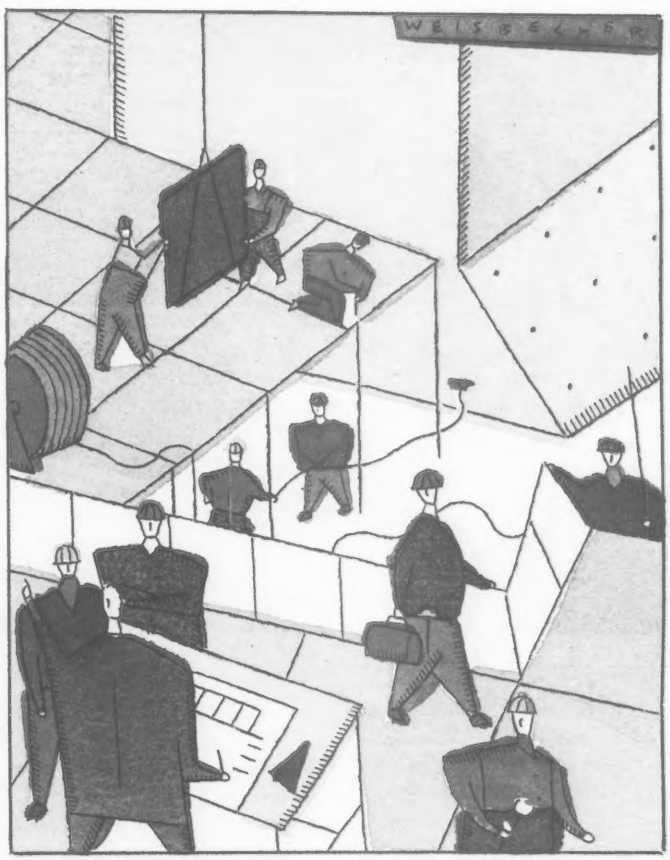
But there are good reasons to use a systems integrator for some IS projects, and the success of such a venture requires that the IS organization give a lot of control and decision-making authority to the integrator. If the integrator firm is to guarantee the final, desired result, then it must be given the authority to do the job as it sees fit.

Still, Patz's original solution to the state of Massachusetts' latest systems integration problem did not call for a systems integrator at all — that is, not a classic outside systems integrator who would take responsibility for the entire project from start to finish. Instead, the state's information systems staff was going to act as its own systems integrator and assemble an ideal solution for the exact situation. "We wanted to get the best stuff. We didn't want any compromises. So, we were going to do the integration ourselves," Patz explains.

In late 1985, the problem the agency faced was the need to upgrade and integrate the state's antiquated environmental information systems — built on an IBM 3031 — which served the needs of five major state agencies involved in environmental issues. The systems were so inadequate that the department feared it could no longer fulfill its legislative and constitutional mandates.

In many ways, the IS staff knew what had to be done better than anyone else. They knew the limitations of the existing systems. They knew the political issues within the

Radding is a Boston-based author specializing in business and technology.



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affected organizations. And they already had an extensive consulting study detailing the solution strategy, including specific hardware and software recommendations.

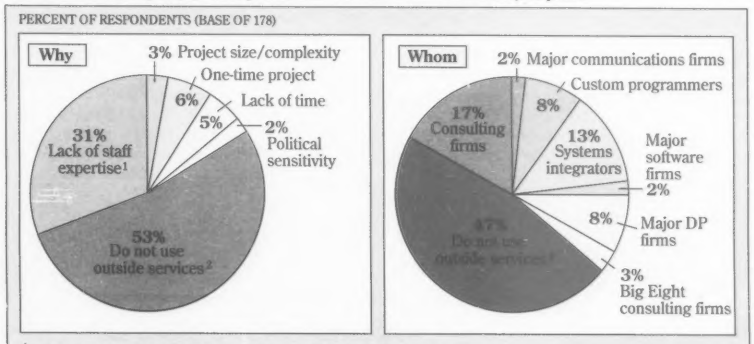
So Patz and his staff decided to do the job themselves. They planned to break the massive task into three distinct phases and handle each phase successively. Theoretically, this approach would give the department the very best system at the very best price, without having to make any compromises. Logically, every part of the system would work with every other part, and the department's IS staff could handle the job themselves, saving the cost of a systems integrator by supplying their own "sweat equity," Patz explains. Best of all, the department would maintain absolute control of the project.

In practice, Patz learned, such a do-it-yourself approach, no matter how sensible it appears, historically has not worked. "After discussions with others and hearing about the horror shows, we realized that it would be better to go with a systems integrator who would deliver an integrated product and guarantee it would work," he recalls. An integrator would add to the cost, force the department to make some compromises and require a high degree of independent decision-making authority. But in return, Patz could be confident that the system would be delivered on time and perform as specified, or the state would not have to pay.

"Almost every large organization has a multimillion-dollar [information systems] skeleton in the closet," says Norman Weizer, senior consultant at the Arthur D. Little, Inc. (ADL) information industries group in Cambridge, Mass. Having heard about some of those skeletons, Patz had good reason to reconsider the initial plan and turn to a systems integrator for the project, which has grown in scope almost tenfold, from $2.5 million as outlined in the initial outside consultants' study to a five-year program costing in excess of $20 million.

Systems integration in the commercial sector

A recent survey asking why commercial firms get outside help on systems integration projects and whom they choose shows that only half of the respondents seek external asssistance in the first place



[1]Includes lack of specialized skills among in-house staff or complete lack of an in-house staff
[2]Percentages differ because of varying response rate from question to question

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Patz's project is in state government, and indeed, most of the systems integration market has grown in the government arena (see story page 104). However, systems integrators today are increasingly looking at the private sector, a large but largely untapped market, for their services. "We're seeing more interest in the private sector, but not nearly to the extent as in government," says Jeffrey Kaplan, director of Ledgeway Group, Inc. a market research and consulting firm in Lexington, Mass.

The interest from the private sector is starting to bloom because commercial firms' upper management is beginning to ask hard questions of its growing IS department. "Top management has made huge investments in information systems and now wants to know how to measure the payoff and why end users are still complaining," says Walter Culver, vice-president of systems integration at Computer Sciences Corp. (CSC) in Washington, D.C. It boils down to accountability and responsiveness, areas in which integrators promise to make a difference.

Cooler reception

But integrators will not necessarily find the same warm reception in the private sector that they have found in the public arena. "The private sector is different from federal systems," notes Kaplan, pointing to three major differences between the public and private sectors that greatly affect the way private firms view systems integration.

First, the government generally has fewer people with top-notch information systems technical and managerial skills. A commercial organization, by

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comparison, usually has a more professional IS staff.

Second, the government is more likely to make sweeping systems changes. In the private sector, changes are usually incremental and evolutionary, not revolutionary.

Third, the private sector is uneasy with the large contract expenditures and long-term commitments often required in systems integration, especially in uncertain economic times.

Despite the crucial differences between the public and private sectors, there are still valid reasons for commercial IS departments to turn to systems integrators. Because of the constant explosion in technology, for example, information systems are becoming extremely complex. In practice, few IS departments are large enough to effectively handle their day-to-day operational responsibilities, maintenance and new application development and keep up with changing technology. Even when IS can stay abreast of technical advances, it will still lack hands-on experience with the newest technology.

Furthermore, systems integration invariably introduces new, unknown elements to the existing system. Yet the focus of the in-house IS staff must stay where its expertise lies — on the organization's ongoing business and existing systems. Where is this staff going to find the proven expertise and the time to handle a major integration project?

Take, the Maryland Department of Human Resources in Baltimore, a public organization that uses systems integrators because its DP staff lacks the expertise to do the job itself, according to Stanley Frerking, director of the department's office of information management. "[Ours] are very large and complex projects; one includes about three million lines of code, the other about one million lines," he notes, adding that these massive projects require skills his staff does not have.

And, even if Frerking were confident that his staff could handle such a large, state-of-the-art programming effort involving widespread integration, he says he could not spare them for the task: "My people are tied up with day-to-day operations."

Other organizations do not want to bother with becoming information systems experts. Amgen, Inc. in Thousand Oaks, Calif., for example, is a young biotechnology company focused on creating, manufacturing and selling drugs based on recombinant DNA techniques. "We always felt that hiring people to write code would not get us one day closer to product approval," says Larry May, Amgen's vice-president of finance. Instead, Amgen turned to CSC to provide it with a total manufacturing information system.

Massachusetts Environmental Affairs' Patz

Some organizations simply do not have an IS organization or are under such time pressures that they almost have to turn to systems integrators. Genstar Stone Products Co. in Baltimore, a producer of construction materials, was spun off as an independent entity following the acquisition of its parent company, Genstar Corp. Before the acquisition, Genstar relied on the parent company's IS department in Dallas to handle all its work.

The company was sold in November 1986 and was told it had until May 1987 to get off the former parent firm's system. Paul Veltre, the spin-off's director of information resources, was brought in from the outside — he had been an independent consultant with IS management experience — to establish the company's IS department. Veltre says he is a strong believer in in-house IS because "you have control of your own destiny," but points out that six months is not

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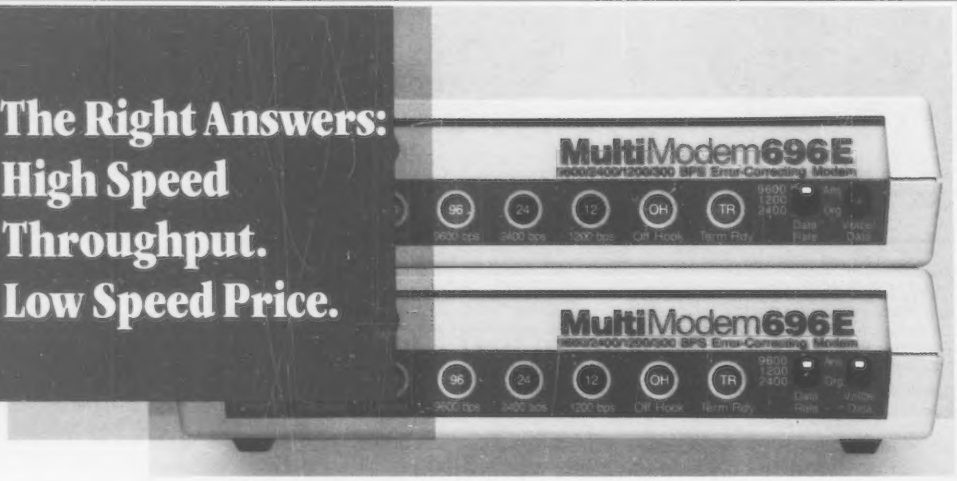

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enough time to ramp up an entire IS operation from nothing.

Instead, he turned to a systems integrator, SHL Systemhouse, Inc. in Ottowa, Ont., Canada, to clone the exact system that the parent company had used. Genstar made a three-year agreement with Systemhouse. The integrator was responsible for getting Genstar's IS functions off the old system and running at Genstar headquarters by the May 1 deadline, which it did. For the rest of the contract period, Systemhouse would run the system with Genstar, thus giving Veltre time to build his own IS department.

When is the time ripe?

The time to call in a systems integrator in either the private or public sector is when the IS department must do something it has never done before. Other occasions for turning to systems integrators are when there are severe time constraints, when the project will cut across a number of organizational lines and an insider might cause territorial problems, when there are complex technical constraints, when the existing process for solving IS problems is not working and when the project is high-profile or high-risk.

Risk sharing may be the most appealing reason for a company to call in a systems integrator, although it may not hold quite the same appeal for the integrator. Risk sharing means that the integrator guarantees a system will work as agreed upon by a certain time for a certain price. The integrator commits itself to throwing as many resources as necessary at the problem to achieve that goal.

"From the client's standpoint, [risk sharing] is very appealing. It makes him breathe a sigh of relief," says Lawrence Hadding, director of government marketing at McDonnell Douglas Information Systems Co. in St. Louis. With risk sharing, the client is no longer afraid

What's an integrator?

What exactly is a systems integrator? The label can be applied to a wide variety of computer industry organizations, from free-lance programmers to value-added resellers. Classic systems integrators, however, are usually large organizations that assume start-to-finish reponsibility for an entire systems project.

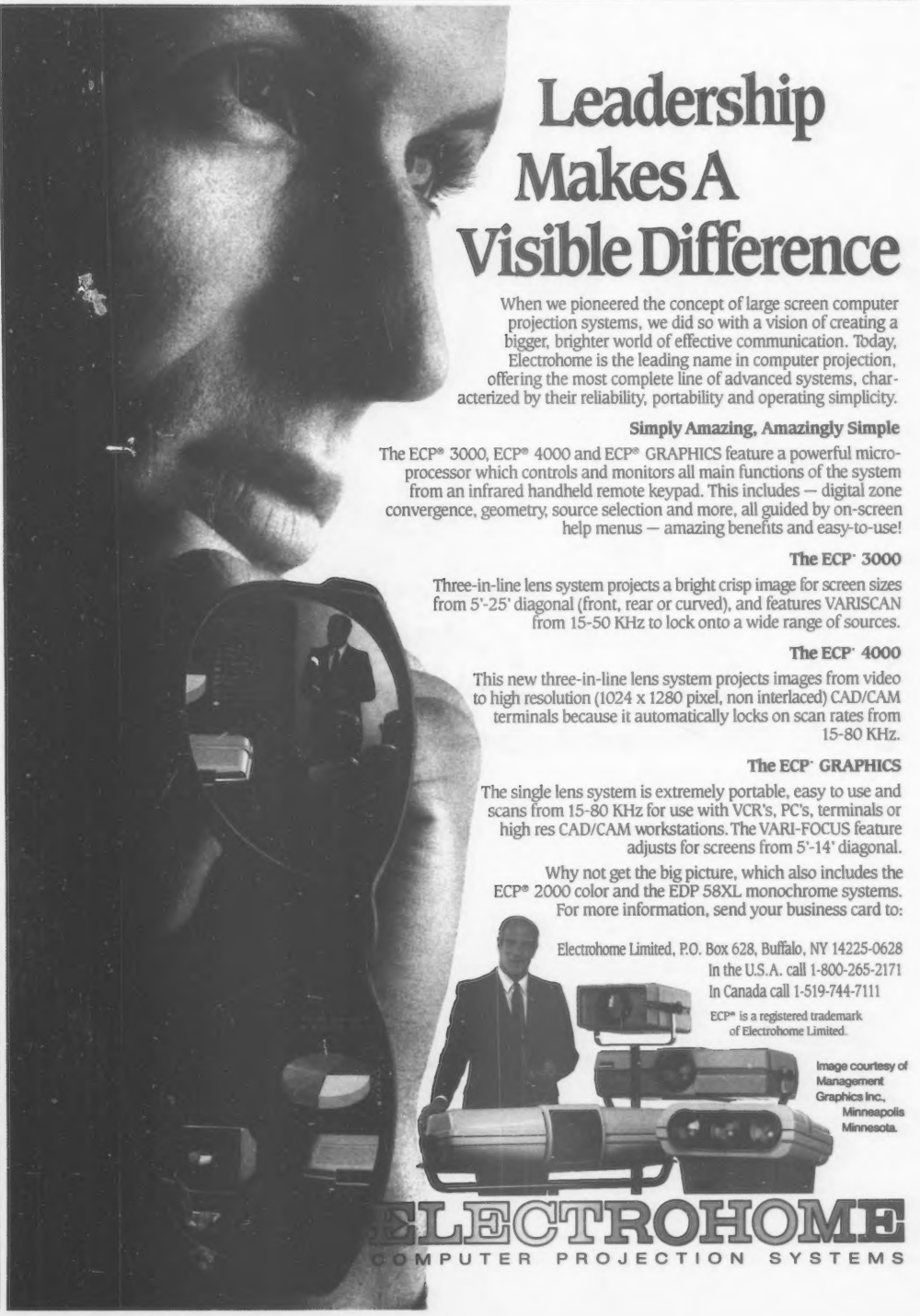
The systems integrator often helps analyze the IS problem and establish solution criteria and systems objectives. The integrator then determines the best hardware platform, acquires the necessary components, acquires or develops the needed software and then makes it all work together.

A classic systems integrator maintains an in-house stable of experts who are knowledgeable in every aspect of development.

Today, systems integrators make up a fast-growing segment of the industry. It is a niche that, because of its value-added nature, provides some of the best profit margins — as much as 30%. The systems integration market is growing, overall, at 10% to 20% per year and has surpassed the $8 billion mark, according to some observers.

Most of the growth and generally the biggest contracts in systems integration come from the government. In the federal sector alone, systems integrators expect more than $10 billion in new systems integration projects in the next two years. By 1992, integrators suggest that the worth of projects overall in the industry worldwide will top the $15 billion mark.

ALAN RADDING



of being saddled with a multimillion-dollar IS disaster.

Risk sharing is achieved by building performance specifications and a timetable into the contract. Patz insisted on very strict performance requirements at every step of the project. Penalties for failure to meet those requirements included liquidated damages, credits and holdbacks. The integrator, McDonnell Douglas, agreed to the terms.

Peace of mind does not come not cheap. "You have to bear in mind that [risk sharing] costs money," Patz says. "It adds to everything you do, so everything is more expensive."

For instance, even when Patz can buy hardware for less than what the systems integrator charges for it, he must buy it through the integrator.

Systems integrators argue that integration does not really add to the total cost. "MIS cannot do it cheaper than we can," Culver insists. For example, few IS departments can get the kind of volume discounts available to a large systems integrator.

If IS were to hire the experts that the systems integrator puts onto the project as a matter of course, it is not going to cost any less for comparable talent and may cost more. "They will have to pay a premium for good people, and then, when the project is over, what does MIS do with those people?" Culver asks.

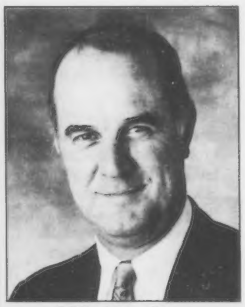
Software only

The Gas Research Institute (GRI) in Chicago got around the cost issue by hiring a systems integrator for only the software portion of its major integration project, which was a classic integration of systems — each GRI application was on a separate, distinct system, and they all needed to be combined.

"The hardware wasn't part of the systems integrator's charter," explains Hugh Naughton, director of information systems. GRI, which performs research and development for the natural gas industry, is a dedicated Wang Laboratories, Inc. shop, so it wanted to handle the hardware component itself.

The integrator, Systemhouse, agreed to this unusual plan with the understanding that the system would be designed to run only on the hardware platform described and in use at the start of the project. This setup represents another way of balancing risk sharing.

Done in this or a similar way, systems integration does not have to be expensive. Naughton and Systemhouse were able to bring the project in for $1.5 million during a two-year time period. A consultant hired by GRI projected a $2.3 million price tag and a three-year timetable.



GRI's Naughton

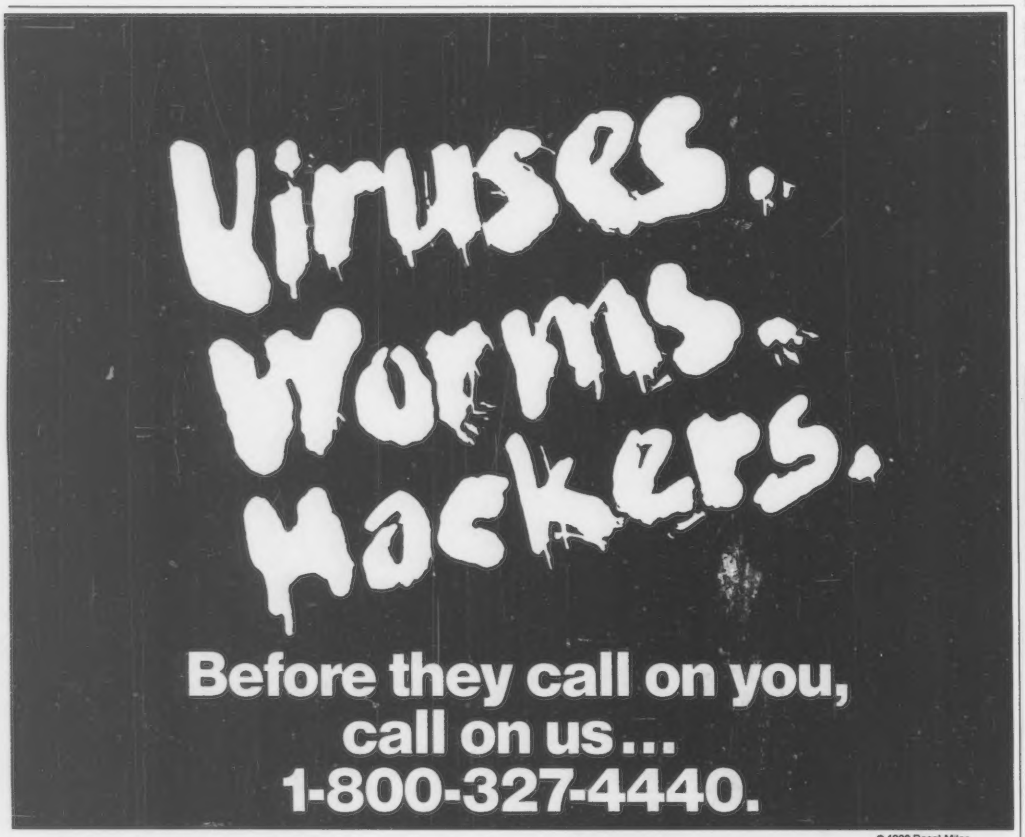
The politics of integrators

The biggest hurdle for IS in using systems integrators is not the technical aspects of the project, but the political issues. Unless the decision to bring in a systems integrator originates with the organization's IS department and not corporate management, as is sometimes the case, the in-house staff can feel slighted. Even when IS management brings in the systems integrator, staff members can still be resentful.

Some IS departments — those that have been preaching their indispensability as the basis for increased funding — may find it hard to admit to the need for a systems integrator. Others greet integrators as long-awaited problem solvers.

Regardless of the welcome, systems integrators tread respectfully around the existing IS staff.

According to McDonnell Douglas' Hadding, "Our philosophy is that we don't push MIS aside. They'll be there when we leave. They know more about



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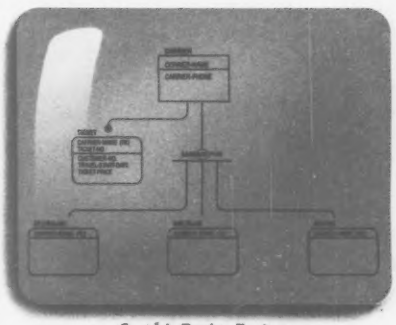

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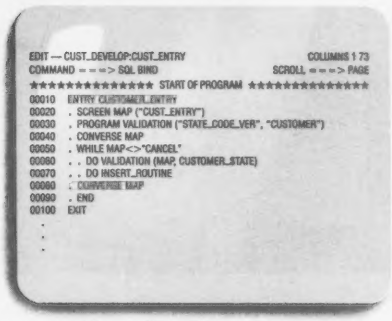

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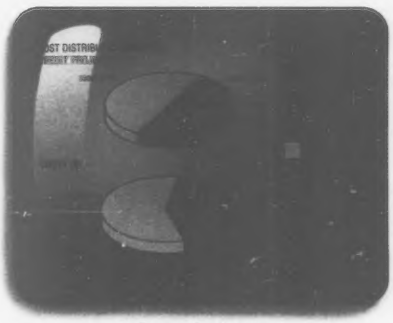

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their business than we do."

Patz says he is about to push Hadding's philosophy to its limits. "We've set up parallel teams, block by block, at every level of the structure. We are going to interface with them one-on-one at a peer level," he says. The close relationship will provide constant performance monitoring and allow the in-house staff to thoroughly understand the new system, which they will have to maintain on their own once the contract expires.

At Genstar, its relationship with Systemhouse was a little rocky at first, possibly because Genstar did not have an established IS department to wield the organization's authority. "It was a little hard at first, sorting out who was the chief and who were the Indians," Veltre recalls, but once that issue was settled, a strong relationship developed. Systemhouse knew from the outset that the goal was to develop in-house capabilities at Genstar, and it has been cooperative in that effort.

Who ya gonna call?

Once the decision is made to use a systems integrator, determining which one to call can be tricky. In the governmental process, there is typically a systematic bidding procedure based on points awarded for technical aspects and a separate cost-management proposal. In the private sector, formal, competitive bidding plays less of a role.

Genstar put out a request for proposals and selected Systemhouse, although it was not the lowest bidder. Instead, geographic location was more important, and Systemhouse had a Maryland office. Genstar wanted the systems integrator nearby after its frustrating experiences with a data center located 2,000 miles away. Of course, Veltre still had to be comfortable with Systemhouse's somewhat higher price tag.

Amgen went shopping for a packaged solution and interviewed eight vendors. After reducing the options to a choice of two systems integrators, it selected CSC in part because it liked the modular approach of its manufacturing package. The company could use the CSC manufacturing system while maintaining its own financial reporting systems.

GRI unintentionally ended up using two systems integrators simultaneously for the duration of its project. The company was impressed with the energy and raw talent displayed by a young software firm just attempting systems integration. Yet, it also wanted the experience of an established systems integrator like Systemhouse. The result was an intense competition between the two, each wanting to top the other. For a while, Naughton's biggest challenge was keeping the competition under control.

Complicating the choice is the entry of major hardware vendors into systems integration. Established independent systems integrators scoff at the notion that IBM can be a true systems integrator because it must favor its own technology, thus defeating a major feature of systems integration — the impartiality needed to choose the best solution.

IBM, naturally, does not believe that impartiality is an important criteria. "We don't claim to be totally impartial, but we do have other strengths," says Gerald W. Ebker, IBM vice-president and president of the Systems Integration Division in Bethesda, Md.

For instance, Ebker points to his division's knowledge of unannounced IBM products, saying there is almost always some content of undisclosed product in a systems integration project.

While some observers suggest that systems integration is a passing fad, ADL's Weizer and others claim it is the wave of the future. Systems integration will last because "technology is becoming so complex, and systems use so many different technologies that need to be married," Weizer says.

As pressure mounts for corporate IS to leverage existing systems while capitalizing on new technologies and, at the same time, operate and maintain the daily IS functions and do it all in a cost-accountable way, information systems departments must increasingly turn to systems integrators. Gone are the days when the in-house IS department can do it all alone. •

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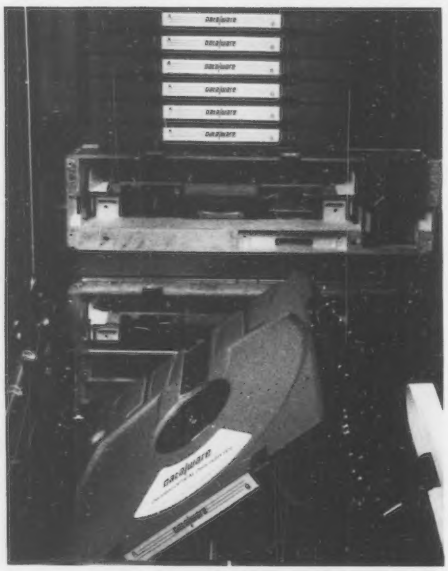

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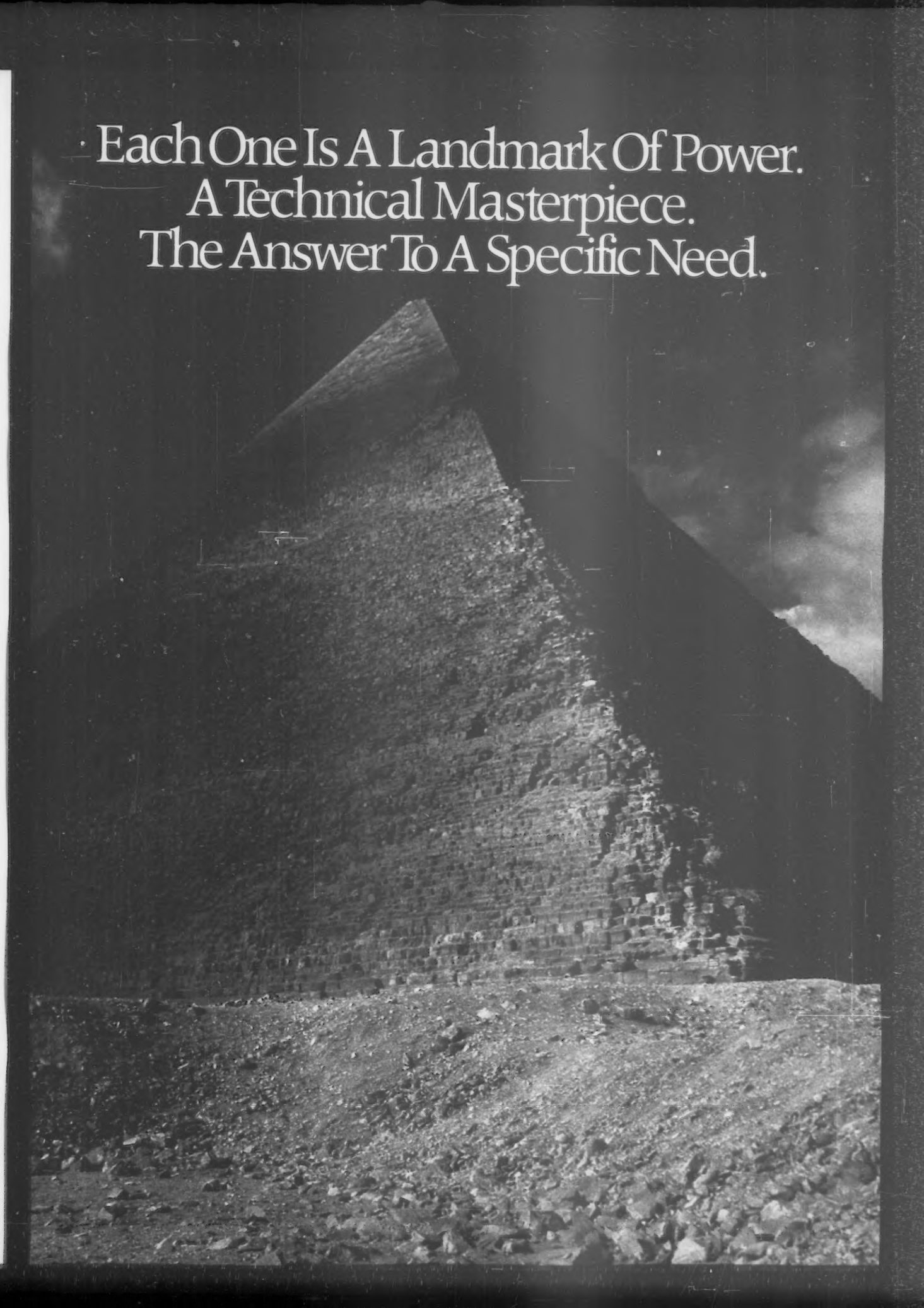
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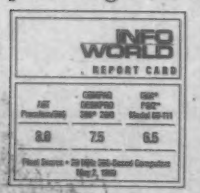

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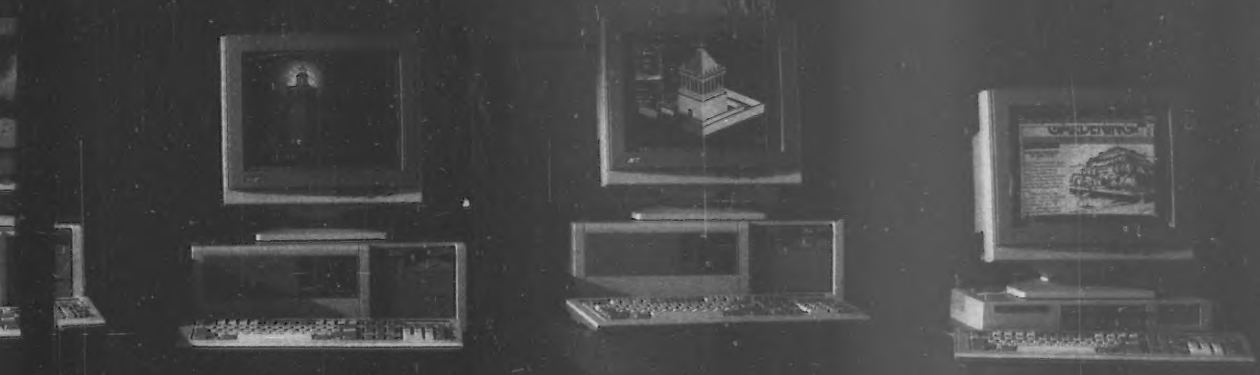

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VA's optical disk project: Anatomy of an integration

Like many other agencies of the U.S. government, the Veterans Administration (VA), based in Washington, D.C., handles too much paper. The department serves 37 million veterans, 20 million of whom have active files. Each case has a folder for the papers related to the particular veteran's situation. The folder may be thin or it may weigh three pounds. No matter how you count it, there is a lot of paper.

In 1985, the VA had outside consultants conduct a study to determine if there was a better way to handle the paper, and the resulting recommendations were that the agency explore optical disk technology. The study also suggested that the agency find a single source to design and install an optical disk system.

The VA started looking for an expert to develop a pilot project. "You have to remember, this was 1985. There were maybe 50 optical disk projects worldwide and only four vendors. No one had [in-house] expertise," recalls Mary Leland, deputy director of the VA's vocational rehabilitation and education service. The VA's data processing department is extremely small, staffed to handle only financial and word processing applications.

For its pilot optical disk project, the VA had other constraints, too. "We didn't want to have to change our existing systems. We wanted to be able to sit at a single terminal and call up everything," Leland says. The agency used a Honeywell, Inc. system for financial applications and a Wang Laboratories, Inc. word processing system. The optical disk setup would have to interface with both systems.

Although the agency already had the consultants' recommendations outlining the solution, it recognized that it still could not handle the job itself. "The VA doesn't follow technology closely. Our job is paying benefits," Leland explains. With the blessing of the agency's DP department, the VA went outside to find someone who could do the job.

The VA chose American Management Systems, Inc. (AMS), a systems integrator and consulting firm based in Arlington, Va. "They had done the most optical research at that time. For us to try to go out without that [type of] research would have been impossible," Leland says.

AMS was brought into the project and worked closely with the VA's IS staff and Leland's program staff. "AMS owns the equipment. They designed, bought and installed the system and then trained us," Leland notes. The optical disk system AMS brought in was from Filenet Corp.

Leland was hesitant about the arrangement. There was the potential for a culture clash because of the differences between a large government bureaucracy and a sharp private-sector firm. The potential for problems, however, was quickly diffused. "We had a lot of support from the top," Leland notes. With the the agency directors behind the project, the rest of the staff cooperated enthusiastically.

AMS' staff also helped avoid conflicts, Leland says. They had high levels of technical skills and were sensitive to the personnel dynamics of the VA's organization.

For instance, AMS did not impose a systems design on the end users. "Rather than brief us on what we were going to get, they sat down and actually talked with the users," Leland explains. AMS gave the users what they wanted.

> THERE WAS THE potential for a culture clash because of the differences between a large government bureaucracy and a sharp private-sector systems firm.

The users insisted that they be able to call up a copy of the entire contents of each veteran's folder every time they needed access to any of it. AMS gave them that capability, although later studies monitoring the pilot showed that users rarely looked at more than the same five documents in evaluating claims. Until the VA gave them this capability, however, there was no way to convince users that any less would do, Leland concludes. AMS is now developing a version that brings up the five key documents first.

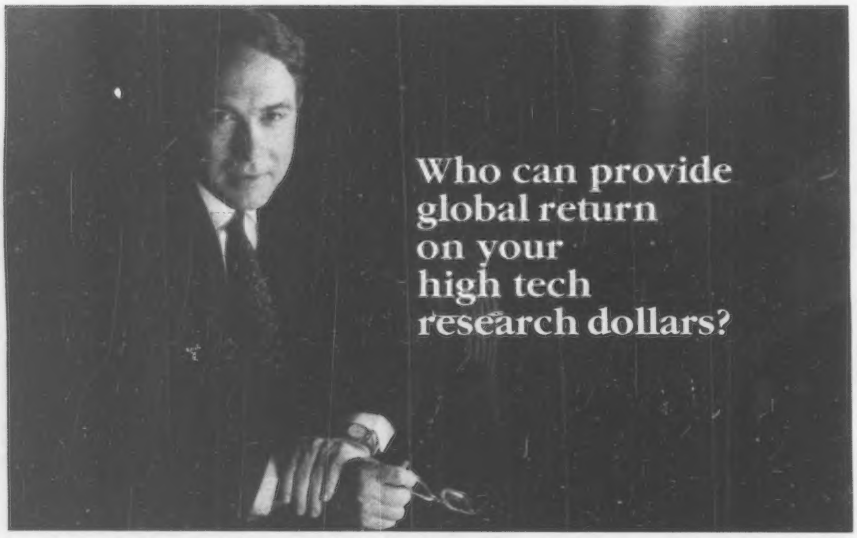
Technically, the biggest challenge to the VA's project was the three-way integration between the Wang and Honeywell equipment and the optical disk systems. "AMS built a protocol box to integrate three-way functionality. We couldn't have done that," Leland points out.

Using the paper system, it used to take a VA claims representative three days at best and more often several weeks just to get the proper folder. With the pilot system, it takes less than a minute. Today, the prototype is under evaluation, and the agency will decide next year whether it will roll out in real production mode.

The VA optical disk pilot system was installed in the agency's St. Louis branch on Nov. 30, 1987, two weeks behind schedule. Says Leland, "As far as I'm concerned, that's perfection."

ALAN RADDING

Thomas Swithenbank, president, IDC



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INDUSTRY INSIGHT

Nell Margolis

Dangerfield factor

Bad news for the computer industry: The Academy Awards nomination list is out, and once again, MIS made a poor showing. In fact, not to put too fine a line on it, information systems folks and themes were a total no-show among the lists of possible winners in the major categories.

There's a reason for this, of course. There were no Best Actor or Actress nominations for anyone starring in the role of an MIS director because nobody played one in the movies this past year. The number of films that took place in or around the world of commercially applied technology was on the low side — zero, I believe, is the applicable number — so Best Picture and Best Director were similarly foreclosed. Best song? Let's not get ridiculous.

The message is sad but clear: It isn't cool to be a techie in America.

What? Not *cool?* Academy Awards? She's kidding, right?

Right.

But barely.

Unless this year is different from the past few, technology will, of course, be honored in April by the American Academy of Motion Picture Arts and Sciences. There will be a slew of awards for sound, special effects, animation and a host of other technological achievements. Behind the scenes, the movie industry is, in fact, highly technological.

But up front, on the screen, where style is set and dreams begun, tech is a four-letter word.

It isn't just in the movies. The same week that saw the Academy Award nominations also brought me the following reminders of the regard in which the computer industry is held:

• *Vanity Fair*, another notorious chronicler of Cool, published a review of a first novel that is receiving a fair amount of critical acclaim at the moment. The review revealed the book's author to be an ex-computer industry reporter for *The Wall Street Journal* who turned to fiction when she real-

Continued on page 118

Epoch taking the high road to success

BY NELL MARGOLIS
CW STAFF

MARLBORO, Mass. — Three years ago, Kenneth Holberger, Charles Holland and Gregory Kenley were would-be entrepreneurs with a hot product idea and a hatred for mediocrity. The former, according to analysts and users, got Epoch Systems, Inc. off the ground. But it is the latter, according to Holberger, that is really making the company fly.

"Failure isn't a problem for a growing company. Failure ends," he says. What really cripples companies, according to Holberger, is "mediocrity and ambivalence — those are my worst fears." In shepherding two friends through a business plan in 1986 and deciding to join the company they created as its president, Holberger made certain to avoid his fears at every turn.

Epoch makes the Epoch-1 Infinite Storage server, a hierarchical data storage system that weds high-speed magnetic disk drives to a jukebox-full of optical disk technology to store, manage and deliver as much as 150G bytes. Aimed at networked workstation users, it supports any hardware that uses Sun Microsystems, Inc.'s Network File System protocol — a group whose roster includes the wares of Sun itself, Digital Equipment Corp., Apollo Computer, Inc., Hewlett-Packard Co. and IBM.

Because the Epoch-1 software runs interference between active files stored on the magnetic media and lower priority, but still needed, data housed on the optical disks, the user benefits from two crucial illusions: All data appears to be on-line and storage capacity appears to be unlimited. While imitators are imminent, the Epoch-1, which debuted last fall, appears to be the first of its kind, analysts said.

A marketing bull's-eye

That the Epoch-1 is hitting a marketing bull's-eye comes as no surprise to the company's founders. Holberger, Engineering Vice-President Holland and Director of Software Development Kenley — three Data General Corp. veterans who got fed up with the slowed-down large-corporation approach to technology and lit out for entrepreneurial territory — started with a clear vision of the kind of company they wanted to run. They did not, however, have any such certainty as to what the well-run company would offer the public.

The Epoch crew engaged in a nuts-and-bolts, homegrown exercise in market research, Holberger said. Step No. 1 was finding a big and growing market. Holberger, Holland and Kenley targeted workstations. Step No. 2 was asking the users in that market what they needed the most. One answer popped up repeatedly: storage.

"It's a problem I've always been aware of," says Bob Milstein, a software development manager at Cambridge, Mass.-based Thinking Machines Corp., where some 120 workstation users battle daily for data-stashing space. "No matter how quickly disk technology advances, your

Continued on page 121

Up & Coming: *Epoch Systems*

Location: Marlboro, Mass.
Incorporated: 1986
President: Kenneth Holberger
Employees: 36
Product line: Data storage servers that combine magnetic and optical disk drives to offer high-power workstation users virtually unlimited capacity

E-mail a cornerstone to build on

ANALYSIS

BY PATRICIA KEEFE
CW STAFF

Simple, stand-alone electronic mail may be in danger of becoming a commodity, but that same capability, when integrated with other office automation functions, is expected to help drive local-area network-based office system sales through the roof.

Robust market forecasts, such as International Data Corp.'s (IDC) prediction of a 78% compound annual growth rate through 1992 for U.S. LAN-based office systems, tout revenues reaching $218 million. These estimates dovetail neatly with three converging trends, according to analysts:

• Downsizing the capabilities of traditional host-based office automation products — such as Data General Corp.'s CEO, IBM's Professional Office System (Profs) or Digital Equipment Corp.'s All-In-1 — onto a LAN.

• A push from personal computer users for better integrated applications that facilitate improved information access and exchange throughout the enterprise.

• The emergence of CCITT's X.400 transport mechanism, which will be used to link many of these systems to one another.

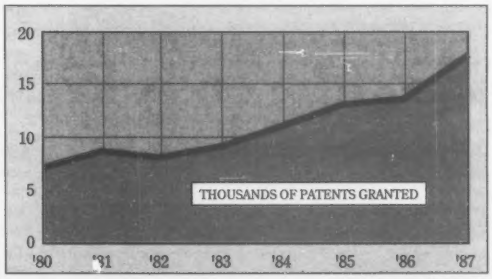
When this catches up to E-mail technology, it could result in increased coupling between applications and E-mail vendors,

Continued on page 114

Data View

Japan storms patent office

The number of U.S. patents granted to Japanese residents has soared in the last five years



SOURCE: DATAQUEST, INC.
CW CHART: DOREEN DAHLE

Smart move at Apollo

BY WILLIAM BRANDEL
CW STAFF

It looks good on paper.

Apollo Computer, Inc. is heating up its marketing efforts by increasing the responsibilities of recently appointed Worldwide Marketing Vice-President John Migliore.

Apollo's Migliore

Apollo broadened Migliore's title and power base last week to include North American sales efforts as well as worldwide marketing. Migliore, a former Fairchild Semiconductor Corp. and Texas Instruments, Inc. executive, was brought aboard late last year after Apollo, already bypassed in the workstation market by Sun Microsystems, Inc., watched Digital Equipment Corp. and Hewlett-Packard Co. further erode its share of the market it pioneered.

The firm has been repeatedly slammed by industry observers for its marketing weakness. The Migliore hire won praise from analysts who saw it as a move in the right direction for Apollo.

Last week's expansion of his territory is a further move in the same smart direction, said Robert Herwick, an analyst at Hambrecht & Quist, Inc.

Is it enough and in time? Last week's move, Herwick said, "at least shows that Apollo is ready to put serious money behind marketing." What the actor will do with the new script, he said, remains to be seen.

E-mail

CONTINUED FROM PAGE 113

whether via strategic alliances or acquisitions, analysts said.

The impetus is obvious. At the same time users are pressing LAN providers to offer E-mail capabilities, integrated office systems suppliers are looking at E-mail as a conduit on which to build their applications and as a way to extend the reach of their OA and groupware offerings.

Both trends promise to take E-mail technology — and potentially its suppliers — further than either could go alone. E-mail by itself was less than a roaring success, claimed Thomas White, president of Action Technologies, Inc., which sells groupware that incorporates electronic messaging.

"But once you [use] mail, you really need other integrated services to make it worthwhile, and it must work with the environment you have," White said. It must also talk to minicomputer- and host-based messaging and office automation systems, added David Taylor, director of the Gartner Group's Inter-Enterprise Systems group.

Moving on up

The consensus among speakers at a recent user panel on E-mail at Networld '89 Boston was that users are trying to migrate from midrange host-based E-mail systems such as Profs to LAN products, which tend to have more features and are less expensive, said IDC analyst Paul Thomas, who attended the session.

This has led to a reconceptualization of E-mail, Taylor said. Once seen as a mere messenger, it is now viewed as providing the ability to incorporate and move binary information, whether graphics, voice, text or image, he said. Taylor added his name to the growing list of those who see E-mail providers becoming acquisition targets to a much greater extent during the next few years than they have been.

One such merger has already taken place this year. Enable Software, a supplier of network-based integrated office systems software to the government, recently purchased Conetic Systems, Inc.'s Higgins E-mail and groupware application.

IN BRIEF

Getting them all together . . .

Networking and telecommunications player **Lachman Associates, Inc.** and Kodak subsidiary **Interactive Systems Corp.**, a purveyor of Unix products to Intel Corp. 80386-based systems users, are betting on the coupling of Interactive's distribution channels with the strength of Lachman's on-site services to boost the merged company into major-contender status in the Unix and open systems markets.

. . . . . .

. . . and together

Artificial intelligence pioneer **Teckowledge, Inc.** and privately held **Cimflex Corp.** are combining their names as well as their missions: Cimflex Teckowledge Corp., to be headquartered in Pittsburgh, will focus on knowledge-based factory automation applications.

. . . . . .

. . . and together

Cambridge, Mass.-based project management and maintenance software developer Project Software Development, Inc. and Ann Arbor, Mich.-based ADP Network Services' APECS 8000 project management software line. With the APECS 8000 acquisition, Project Software Development makes its first move into Unix.

. . . . . .

And then come the offspring

In the wake of major customer **Unisys Corp.'s** February announcement of inventory adjustments, multiprocessing computer maker **Arix Corp.** announced a new subsidiary, **Imix Corp.** Based in Washington, D.C., Imix will develop Unix-based image management systems to market to systems integrators for use in turnkey packages. The birth of Imix, Arix Chief Executive Officer Gene Manno said, is a step toward weaning Arix from its dependence on one or two customers.

. . . . . .

Back to black for fiber optics groundbreaker

Fiber optics pioneer **Fibronics International, Inc.** last week announced $901,100 net income for the year ended Dec. 31. This marks Fibronics' first annual profit since the company went public in 1983. According to a company spokesman, the return to the right side of the balance sheet could be a signal that last year's move of bringing in President John Hale to turn around Fibronics' flagging fortunes is working.

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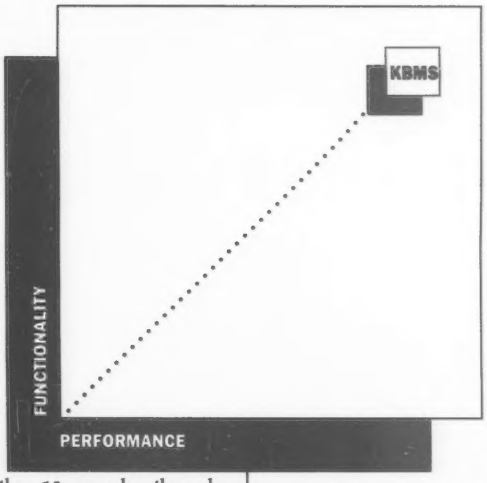

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—John Miller, AT&T Director-Business Services Development & Network Management

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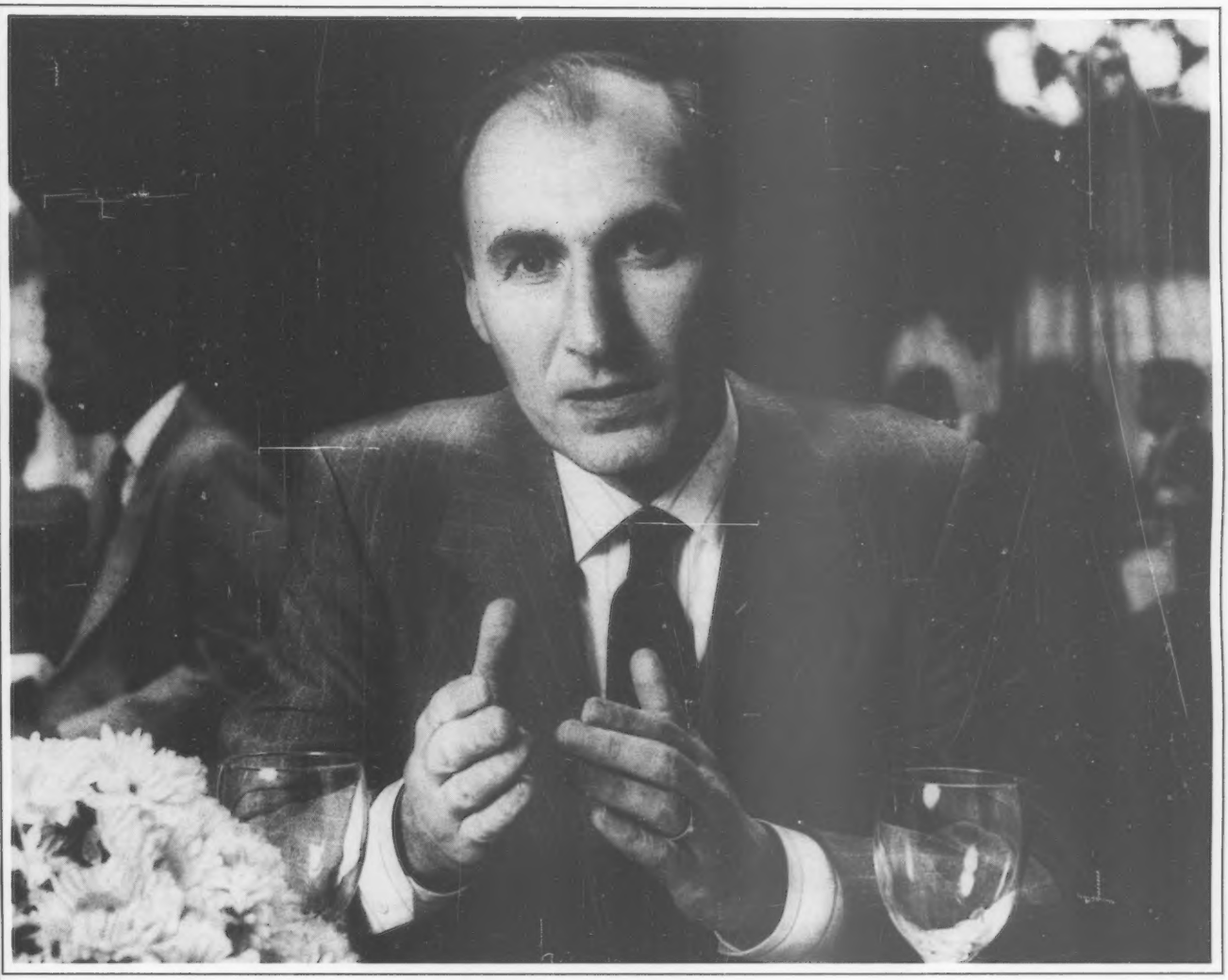

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AT&T

The right choice.

Margolis

CONTINUED FROM PAGE 113

ized that, one, she spent her days asking rude questions about "stuff I never understood anyway," and two, her babysitter out-earned her.

• A new novel by another well-regarded young writer describes computer camp as a place where unlovely and unloved teenage outcasts can enjoy, among even the sorrier of their peers, the popularity they were denied until June and will be denied again come September.

• As an art project, a group of sixth graders at a prestigious private school in Cambridge, Mass. — turf on which the occasional techie has been spotted —drew life-size portraits of themselves as they expected to be in 20 years. The gallery of finished works featured exactly — count 'em — the same number of computer technologists as did this year's list of Best Motion Picture nominees.

All right, so maybe it isn't cool to be a techie in America. So what?

So this: It is incredibly cool to be a techie in Japan.

Lest citing the likes of *Vanity Fair* and the fiction shelves at the local library offend anyone's sense of seriousness, does the Harvard Business School make the cut? That's where I first heard that one of the major factors threatening the U.S. competitive position in the rapidly forming global marketplace is the fact that it isn't cool to be a techie here.

I went to the B-School in 1985 to interview a leading voice on the subject of how and whether the U.S. could regain its leading edge in international commerce and technology. What he told me, of course, could fill a book. (It has — his.) One of the easiest and best things our president can do to boost our competitiveness, he said, would be to establish an extremely prestigious award to be given annually for an achievement in engineering.

QUESTION: How do you say "geek" in Japanese? Answer: You don't.

Make it a gold medal or statuette, he said. Hold the ceremony at the White House. Give it major media coverage. Build it into a household phrase like "Nobel Prize" or even "Academy Award." And do it soon, he said, because we need it yesterday. Why? Because we desperately require quality engineers tomorrow if we want to be a technological world leader, and we're not going to get them as long as it's not cool to be a techie in America.

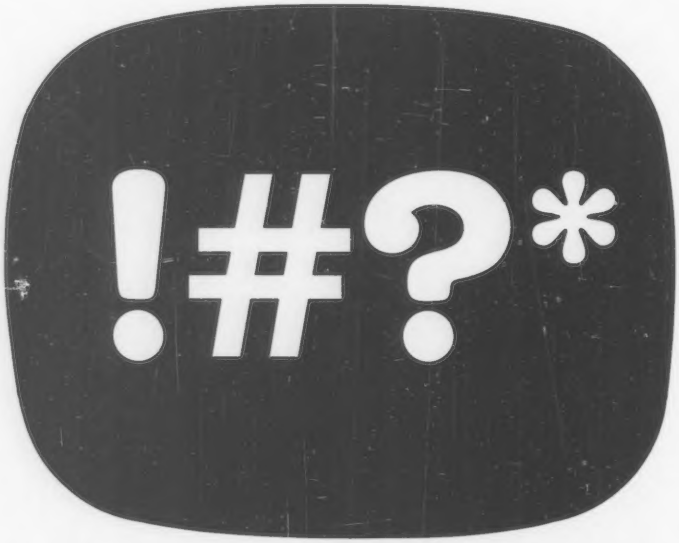
In Japan, he noted, engineers are among the prestige elite. A teenager who aspires to become one is considered savvy; an adult who has already become one is considered enviable. Question: How do you say "geek" in Japanese? Answer: You don't.

An overnight about-face in American consciousness is not a possibility, the Harvard professor said. The establishment of an award, on the other hand, is.

OK, so maybe the Academy Award idea is reaching a bit. We're probably not going to see Dustin Hoffman starring as *Brain Man* in next year's list. We're not going to flock to the mall to see Tom Hanks as an Application System/400 developer in *Big: The IBM Story*. And when we see *Bull Durham* on the marquee, it's not going to be about a French-based computer company moving its U.S. headquarters to North Carolina.

Not yet. But maybe it's time to get started on the Nobel-like prize in engineering.

Margolis is *Computerworld's* senior editor, computer industry.



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Wollongong idles 10% of work force

PALO ALTO, Calif. — Operational expansion without the revenue to support it has forced The Wollongong Group, a developer of internetworking software, to lay off 20 workers — 10% of its personnel.

The cuts will come largely from the company's administrative staff, according to President Herb Martin. Based on last year's growth figures, Wollongong budgeted for a 55% growth rate in its first quarter, ended in September. "We made an error in planning," Martin said, noting the company has nonetheless been profitable for 17 consecutive quarters.

The layoffs followed the February cancellation of Wollongong's proposed merger with OEM partner Advanced Computer Communications of Santa Barbara, Calif., which makes communications devices. Both firms are privately held.

According to Martin, after "laborious" negotiations, it came down to a control issue: "You had two guys who didn't want to relinquish control over their companies."

The two firms will continue their cross-OEM relationship, which netted Wollongong $1 million last year. "We're still interested in a potential merger or acquisition, but we're not actively pursuing it at the moment," Martin said.

PATRICIA KEEFE

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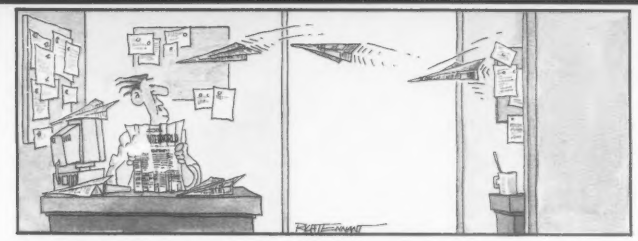

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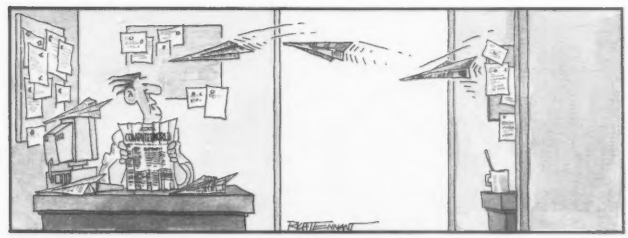

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Epoch

FROM PAGE 113

files are invariably full 95% of the time."

Buying another disk each time the problem rears its head, he says, becomes an expensive, unwieldy and sometimes unfeasible alternative. Thinking Machines was delighted to become an Epoch-1 beta site, he notes.

If the Epoch-1 was just what workstation users craved, Holberger says, so was Epoch Systems a model of the kind of company that venture capital was looking for in 1986. According to Holberger, venture capitalists

> "JUST to have installations out there this soon puts Epoch way ahead of the game. They've always had their act together."
>
> JOANNE BRONGA
> CONSULTANT

— still reeling from the boom-and-bust initial public offering market that left technology financiers holding the bag several years earlier — had developed a laundry list of requirements.

"What they wanted to see," he says, "was seasoned management; a targeted market demand; absolutely no more 'me-too' *anything*; a product technology that wasn't so hard that you couldn't bring it to market in two years but that wasn't so easy that anyone could knock it off; and a founding team that wasn't asking for megabucks. We had it all." Epoch started life with some $9 million in venture funding.

The company had it all in several senses of the phrase, says John Dunkle, a market analyst at Workgroup Technologies, Inc. in Boston. "I came into my first meeting with them thinking, 'Oh boy, here we go again.' I threw Ken Holberger one curve after another," he says. "He fielded every one. They thought it out completely before putting a single screw in a single board."

Quality-conscious

As far as Holberger is concerned, that is the only way to go. "It's hard to increase quality," he says. "For one thing, people don't tend to hire people who are better than they themselves are." If you want quality, "and we didn't want anything but, you'd better get it up front," he adds.

Quality, Holberger says, goes well beyond paper credentials. In Epoch's earliest months, when software engineers were desperately needed, a bankruptcy at a nearby high-tech company left an available pool of software talent for the taking, he recalls. "We interviewed all of their software people, and hired none," Holberger says. "We found a lack of communication, a lack of integration. They weren't software engineers — software artists, perhaps."

"We hired late, and we hired slow, but we held out for the best," he says. "That's what let us complete our first product close to schedule."

That they did so is no small achievement, says Joanne Bronga, a Jamestown, R.I.-based optical disk and imaging market consultant. "A typical turnaround for an imaging product sale is 12 to 18 months," says Bronga, who was part of a start-up effort to launch a product similar to Epoch's that was one of the casualties of the October 1987 stock market crash. "Just to have installations out there this soon puts Epoch way ahead of the game. They've always had their act together."

With a string of Epoch-1s now installed and serving a target market that is booming as predicted, Epoch is harnessing all its guiding principals to spearhead what Holberger calls its second life as a start-up.

"For two years, we've been a marketing-oriented company with a focus on engineering," he says. "Now we're a start-up again, this time with the emphasis on sales." The company's goal, he says, is to become a checklist item: "When you buy storage for your workstation network, we want you to automatically think Epoch."

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Can MIS pros handle sales?

If so, there's money in systems integration and contract programming

BY JANET RUHL
SPECIAL TO CW

A breakneck pace, cutthroat competition and the opportunity to make more than $100,000 per year — if this combination appeals to you, you might be interested in a career selling programming or systems integration services.

Top managers of firms purveying these services differ greatly in their views on whether people with an MIS background are suited for their sales positions.

At one extreme is Nino Posella, president of Amtec Systems Corp., a wholly owned subsidiary of Computer Task Group, offering both contract programming and systems integration. Posella finds that few MIS managers or technical people possess the sales mentality essential for successful selling. They are prone to managing the client's business or getting hung up at the technical level rather than providing the broad, industry-wide perspective necessary for systems integration, Posella says. He says that such people do better in providing sales support.

The salesperson who Posella prefers to hire is someone with strong connections with both hardware and software vendors, the companies whose products form the basis for the systems integration services.

A similarly dim view of the ability of MIS people to succeed at such sales work comes from Dan Sierra, director of engineering contracts at Kenda Systems, Inc. in Salem, N.H., which employs approximately 150 contract consultants.

Look for specifics

When hiring a salesperson to sell contract programming services, Sierra looks for previous sales experience with a product that has a short selling cycle, such as personal computer hardware, software or time-sharing services.

The most important traits to look for are strong motivation, communications skills and organization abilities, Sierra says. After hiring an experienced salesperson, his company invests in training the person in the technical programming terminology.

Sierra says he does hire MIS veterans to recruit consultants, a position in which they are not "thrown out to clients." Such positions do not pay as well as sales but may lead to a job selling contract services.

Eric Buglein, however, a principal at Computer People Unlimited, Inc., a 5-year-old company with 160 consultants, says he hires only MIS professionals, such as project managers or development managers. Such people can "understand needs and problems from the customer's perspective," he says.

Buglein trains experienced MIS professionals in sales techniques. However, when hiring, he looks for some evidence of a sales background in a resume, such as an attempt to start a company or experience in marketing a product or service.

Salespeople need a sense of urgency, Buglein says, because placing consultants is highly competitive. Management experience is important because the salespeople manage the consultants at a client site. He sees communications skills, technical expertise and a good business ethic as the qualities of the ideal salesperson.

Mike Nicholetti, a founder of 2-year-old Impact Systems, a consultancy in Glastonbury, Conn., agrees that a solid technical background is vital, particularly for a salesperson working for a smaller, lesser known company. A technical background can mean knowing that when a client asks for a consultant with Focus experience, a person with Ramis experience might work out just as well, Nicholetti says.

For people who can successfully sell programming and systems integration services, the rewards can be great. These people typically receive a base salary of between $25,000 and $50,000 per year plus incentive pay.

Nicholetti estimates that a good programming services salesperson can expect to earn between $75,000 and $85,000 per year.

Sierra estimates the earnings of a good salesperson fall in the range of $50,000 to $80,000 per year but notes that about 10% of such people make more than $100,000, particularly in lucrative markets such as New York.

The potential is even higher when selling million-dollar systems integration contracts. Posella says that a good salesperson working for a mid-size company like his own can expect to make $100,000 to $175,000 per year.

In addition, Posella notes, a company that successfully completes a systems integration contract with a client is more likely to get repeat business from that client than a firm placing consultants is, where clients are notoriously fickle.

THE RAPID GROWTH of the systems integration industry means that as companies expand, there are opportunities for a salesperson to advance — perhaps to lead a division.

Longevity will pay off

The long-term career prospects for systems integration salespeople within their firms are better too, Posella says. The rapid growth of the systems integration industry means that as firms expand, there are opportunities for a salesperson to advance — perhaps to lead a division.

The downside of this career path may be the environment in which the salespeople work. One salesperson at a large consulting company in the Northeast says being a smooth talker is by far the most important qualification for the job.

The salesperson adds that the pace of the sales cycle requires one to give the job "every waking hour of your time, and you are to think of possibilities as you sleep." Management monitors salespeople on a daily basis, he says, and as a result, salespeople can burn out quickly.

Ruhl is a consultant programmer in Windsor, Conn., and author of The Programmer's Survival Guide: Career Strategies for Computer Professionals.

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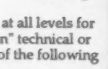

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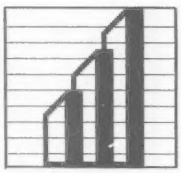

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MARKETPLACE

Stalking vertical software

It is often necessary to choose between the best features and support

BY KATY GURLEY
SPECIAL TO CW

Despite disagreements over what kind of vertical market software is best, most experts agree: Businesses should buy the most targeted vertical software but make sure it will be supported over the long term.

"The best software tends to be written by the users themselves," says Jeff Tarter, editor of "Softletter," a Cambridge, Mass.-based software industry newsletter. But, Tarter says, "The big problem is that the user is a terrible marketer."

Tarter once sifted through 30 veterinary office management packages and says he nearly went crazy trying to figure out what the software did by looking at the packaging. "They don't tell you the price, support or features; there are no pictures of screens — nothing."

In the retail industry, firms have been passing around user-produced applications for 12 years, says John Chay, vice-president of information systems at the National Retail Merchants Association (NRMA) in New York.

Obtaining a package written by and for your industry is not without pitfalls. Peg Duncan, vice-president at Growing Green, Inc., in St. Louis, says she was delighted three years ago when she found Plant Tech, a vertical software package for horticultural businesses that had been written by a horticultural designer. She found the package through an industry association.

There were a few problems from the start. "We never could get the general ledger part of the software to work right," Duncan says.

Discontinued package

Aggravating the situation, the Plant Tech developer has since moved on to other things. The package has not been updated and it is no longer available. Now, Growing Green has no outside technical support for the package, except for a friend of Duncan's who has become familiar with the software and is on call for emergencies. Despite the problems, however, Duncan says she is glad to have specialized software for her business.

Some experts say that in the long run, a company like Growing Green may be better-off with more generic software. According to Doug Weintraub, president at Brunswick Integrated Computer Solutions in Akron, Ohio, vertical software produced by users, and sometimes off-the-shelf software that has been customized, are more trouble than they are worth.

Such software might not be adequately supported, Weintraub says. He wonders what happens when the person who wrote the software or did the customizing goes away. Weintraub advises customers to buy off-the-shelf software or a complete system from a vendor who can support the products.

Tarter says many off-the-shelf vertical software packages, such as medical practice ones, are generic programs that have been minimally customized. They are generally not well targeted toward the users' specific needs and thus are not very useful, he says.

"You can't take a retail package for appliance dealers and make it work comfortably for a hardware store," he contends.

The NRMA's Chay agrees. "There are people who are great programmers, who are systems folks, but who don't understand retailing. They don't understand the retail method of inventory as opposed to the cost method of inventory," Chay says.

However, Paul Wormelli, president of Vision Technology, Inc., in Reston, Va., which sells software to law enforcement agencies, says professional developers can supply well-targeted vertical software to meet needs that generic packages do not address.

> "THE BEST SOFTWARE tends to be written by the users themselves. The big problem is that the user is a terrible marketer."
>
> JEFF TARTER
> "SOFTLETTER"

For instance, a dispatching program calls for a response time of two seconds, Wormelli says. "To get response time like that, you can't take a generic package and change its color to look like a dispatching package."

Despite the fact that there are so many options available, there are some tips for finding the best vertical package for your needs. Talking to other users and attending trade shows top the list. Once a package has been found, however, experts recommend calling customers for references. "Talk to lots of users and do research. There are no shortcuts," Tarter says.

Trade associations also can be sources of information. The NRMA, for one, publishes a software directory for retailers listing 1,000 packages.

Wormelli advises business people to think through the entire operation — the flow of information, how data comes in, how it is manipulated, who it needs to go to and how repetitive processes can be automated.

"Then write it down," he says. "Take that list of requirments to trade shows and get tough with vendors. Ask them to explain their package and how it satisfies your list of requirments."

Gurley is a Wellesley, Mass.-based free-lance writer specializing in high technology.

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The BoCoEx index on used computers

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XT Model 089	$1,200	$1,575	$1,000
AT Model 099	$1,725	$2,000	$1,525
AT Model 239	$1,850	$2,100	$1,800
AT Model 339	$2,050	$2,375	$1,800
PS/2 Model 30	$1,375	$1,550	$1,000
PS/2 Model 50	$2,200	$2,400	$1,900
Compaq Portable I	$675	$750	$550
Portable II	$2,000	$2,100	$1,750
Portable III	$2,800	$2,950	$2,500
Portable 286	$1,750	$1,975	$1,675
Plus	$1,050	$1,250	$900
Deskpro 286	$2,100	$2,350	$1,800
Deskpro 386	$3,750	$3,975	$3,675
Apple Macintosh 512	$625	$775	$550
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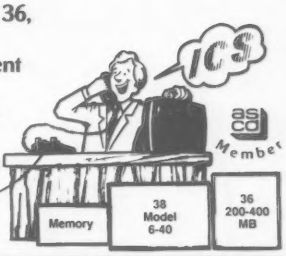

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The City of Eau Claire, Wisconsin, will receive Qualifications Information in the office of the City Purchasing Agent at 203 South Farwell Street until 4:00 p.m. Central Time on March 23, 1989 for Procurement No. 8901, Automated Mapping/Facilities Management/Geographic Information System.

All forms and documents related to this notice and the procurement it describes are on file and available from the office of the Purchasing Agent, 203 South Farwell Street, Eau Claire, WI 54702-5148. Telephone 715/839-4916.

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The Department of Personnel of the City of New York is seeking proposals for the design, development and implementation of a City-wide Equal Employment Opportunity System.

Request for Proposals can be obtained from Frederick A. D'Alo at the Department of Personnel, 220 Church Street, Room 237, New York, NY 10013 or by calling 212-566-3021.

Letters of Intent are due March 24, 1989. The deadline for receipt of proposals is 5:00 P.M. on March 31, 1989.

Further details re specifications and proposal submission can be found within the Request for Proposals.

The Computer and Data Communications Services Agency of the City of New York is soliciting proposals for the purchase and maintenance of a direct access storage device. To obtain a copy of the request for proposal please call Jeff Burns, at 212-240-4318. Proposals are due by March 28, 1989.

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Bids will be accepted by the Niagara Frontier Transportation Authority until Friday, March 17, 1989, 10:00 am local time for any one or all of the following used computer systems:

SYSTEM ONE: IBM System 34 Model 5340-B73 with 256Kb main memory, 200Mb fixed disk, Four (4) local comm ports, one (1) remote 9600 baud EIA comm port, one (1) model 5211 channel-attached printer and one (1) model 5251 system console CRT. System under IBM maintenance agreement.

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Request for Proposal No. 1506, due Wednesday, March 15, 1989 at 3:30 p.m. for the acquisition of a local area network with four 80286-based workstations and related peripherals for the DEPARTMENT OF WILDLIFE CONSERVATION.

Request for Proposal No. 1510, due Tuesday, April 4, 1989 at 3:30 p.m. for the acquisition of the services of a consulting firm to work with the MISSISSIPPI DEPARTMENT OF PUBLIC WELFARE to conduct a feasibility study. The study will identify the type of Child Support Enforcement System that best meets Mississippi's functional and technical requirements. A mandatory Bidders Conference will be held at the offices of the Mississippi Department of Public Welfare, 615 East Amite Street, Jackson, MS on Wednesday, March 22, 1989 at 10:00 a.m. Only those vendors who attend the mandatory bidders conference will be allowed to bid.

Request for Proposal No. 1512, due Wednesday, March 22, 1989 at 3:30 p.m for the acquisition of a small distributed processor to network with an IBM System/36 for the Department of Computer Programming Technology at EAST MISSISSIPPI COMMUNITY COLLEGE. Detailed specifications may be obtained from the CDPA office. The CDPA reserves the right to reject any and all bids and proposals and to waive informalities.

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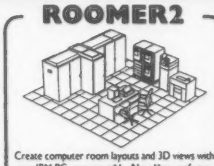

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Auditing your training program

The technique can provide a method of measuring education's relevance

BY BILL SEBRELL
SPECIAL TO CW

Today, corporate budgets throughout the U.S. are being squeezed tighter than at any time in recent years. Microscopic scrutiny of data processing budgets and incessant review of DP training budgets have become de rigueur.

Enormous pressure is being placed on training managers to justify every expense and tie every effort closely to a business issue. At least one new measurement tool can assist in this task — the training audit.

Training managers have historically avoided the task of relating specific efforts to a business issue because of the difficulty of doing so. The more successful and astute training managers have concentrated on justifying costs by quantifying their accomplishments using output figures.

In a superficial way, production figures do provide a tool for relating costs to training benefits. The standard measurement for the technical training industry is the student-day or student-hour. By taking the total technical training budget and dividing by the total student-day figure, you arrive at the internal student-day rate. Comparing this number with the listed rates for outside seminars provides a stab at justification. The assumption is that everyone understands the value of education and training, and the message to management is, "We provide more, and we do it for less."

What's it worth?

But is the education and training any good? And if so, how do you measure that value? Again, the astute training manager has some ready answers in his bag of production numbers, specifically in graphical plots of student critiques.

Unfortunately, these graphs support the quality of training delivery but do not get at the issue of training transfer. They may just touch on the question of relevance to workers back on the job and, therefore, to the company's bottom line.

A better, but still deceptive, production figure comes from comparing pretraining and post-training tests. Graphs of these numbers over time can provide more documentation on training quality and support justification. These numbers do indicate training transfer and are probably the best current measures of the quality of that item, but they do not touch on relevance at all.

What is wrong with these techniques? In truth, nothing is wrong with them if they are carefully controlled and standardized and if it is clearly understood that they fail to address the complete training cycle. This cycle includes needs analysis, training development, training delivery and, lastly, a review or audit to see if the training goals were realized.

Why do managers concentrate on measuring just one portion of the cycle — the delivery? It is really not the fault of the training manager. Senior managers have been asking the wrong question for years. Instead of asking how much training and at what cost, the more appropriate question today is how to measure the worth, or relevance, of the training delivered and its impact on job performance.

These new questions open the door to a unique set of problems, procedures and metrics. Many of the necessary tools to address these issues have not yet been developed, nor have they moved into the professional training arena as standard practices.

One procedure that is beginning to gain favor is the training audit. This procedure is much like the rarely used phase of the systems development life cycle, in which an audit is made to ensure that the benefits espoused at the start of the development of a new system are attained.

A training audit involves interviewing students to see what they are doing with the material they were taught in class. If an audit can be completed from three to six months after a class and seeks answers to specific questions about what was taught, it quickly becomes clear what was relevant and irrelevant to individuals on their jobs.

Based on the audit, the whole training cycle might be repeated. New needs may be identified and old requirements dropped.

BASED ON THE audit, the whole training cycle might be repeated. New needs may be identified and old requirements dropped.

Rare bird

It is the rare technical training organization that completes this full circle and begins to measure, manage and report on the other segments of the training cycle.

No matter how well training is delivered and training transfer takes place, material that is not relevant to people on their jobs and is not used will not be retained. The value of irrelevant training is zero, and it is too costly to deliver at any price.

What, if anything, individuals are doing with material they have been taught has to be addressed on a regular basis, even though doing so is difficult and time consuming.

Sebrell is a vice-president at Data Base Management, Inc., a subsidiary of American Management Systems, Inc. in Manchester, Conn.

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March 13th - Evaluating training software
March 20th - Educating management about using computers
March 27th - Self-directed learning
April 3rd - To lease or rent PC's. What are the advantages & disadvantages
April 10th - Used communications processors
April 17th - Choosing PC fax boards or dedicated fax machines
April 24th - Used 3090 processors

MARKETPLACE

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April 3rd - DP Training Organizations & the Public School Market
April 10th - Developing an Automated Training Management System
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April 24th - Preparing the RFP for Training Services

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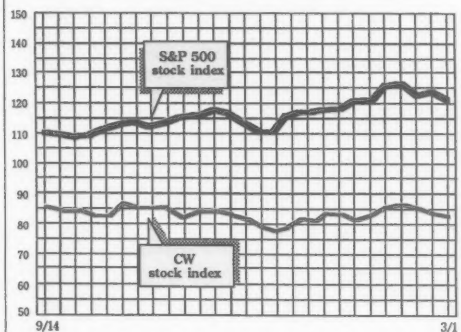

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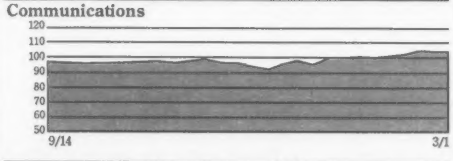
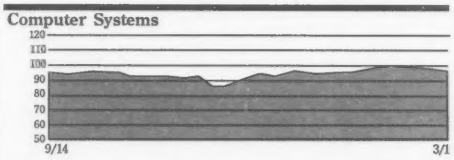
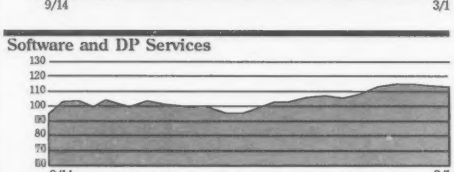


Computer Systems

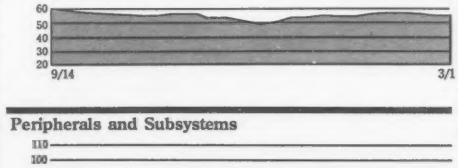


Software and DP Services

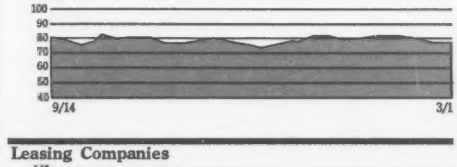


Semiconductors

Peripherals and Subsystems



Leasing Companies



Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, MARCH 1, 1989

EXCH		52-WEEK RANGE (1)		PRICE CLOSE MARCH 1 1989	WEEK NET CHNGE	WEEK PCT CHNGE
	Communications and Network Services					
N	AMERICAN INFO TECHS CORP	53	42	50.75	-0.1	-0.2
Q	ANDREW CORP	22	13	20.25	0.0	0.0
Q	ARTEL COMM CORP	4	1	2.75	0.6	29.4
N	AT&T	33	24	30	-0.5	-1.6
Q	AVANT GARDE COMP INC	3	0	0.532	-0.1	-14.9
Q	AVANTEK INC	8	4	5.125	-0.4	-6.8
N	AYDIN CORP	17	13	15.625	0.0	0.0
N	BELL ATLANTIC CORP	76	64	72.625	-0.8	-1.0
N	BELLSOUTH CORP	44	37	40.5	-0.8	-1.8
Q	COMPRESSION LABS INC	5	3	3.625	-0.1	-3.3
O	COMPUTER NETWORK TECH	2	1	1.469	-0.1	-7.8
O	CONTEL CORP	48	31	46.875	0.9	1.9
Q	DATA SWITCH CORP	10	5	5	-0.1	-2.4
Q	DIGITAL COMM ASSOC	38	17	22.5	1.8	8.4
Q	DYNATECH CORP	24	17	18.75	-0.3	-1.3
Q	FIBRONICS INTERNATIONAL INC	5	3	4.625	0.0	0.0
Q	GANDALF TECHNOLOGIES	8	5	5	0.1	2.6
Q	GENERAL DATACOMM INDS	6	3	5.875	0.9	17.5
N	GTE CORP	47	34	44.75	-0.1	-0.3
Q	INFOTRON SYS CORP	14	8	10.75	-0.5	-4.4
N	ITT CORP	56	44	52.625	-0.4	-0.7
N	M A COM INC	11	8	7.875	-0.6	-7.4
Q	MCI COMMUNICATIONS CORP	27	10	24.875	0.8	3.1
Q	NETWORK EQUIPMENT TECH INC	23	14	19.75	-1.0	-4.8
Q	NETWORK SYS CORP	12	8	9	-0.3	-2.7
N	NORTHERN TELECOM LTD	20	15	15.375	-0.3	-1.6
Q	NOVELL INC	38	19	35.875	-0.4	-1.0
N	NYNEX CORP	71	61	67.875	-0.8	-1.1
N	PACIFIC TELESIS GROUP	35	27	33.625	-0.1	-0.4
A	PENRIL CORP	5	4	4.625	0.1	2.8
N	PLESSEY PLC	45	25	44	-0.4	-0.8
N	SCIENTIFIC ATLANTA INC	16	10	14.25	0.4	2.7
N	SOUTHWESTERN BELL CORP	44	34	43.5	-0.1	-0.3
Q	3 COM CORP	28	16	27.75	1.0	3.7
N	U S WEST INC	63	50	58.75	-1.6	-2.7
	Computer Systems					
Q	ALLIANT COMPUTER SYS	9	3	3.125	-0.1	-3.8
Q	ALPHA MICROSYSTEMS	8	4	6.5	0.0	0.0
Q	ALTOS COMPUTER SYS	13	7	7.5	0.0	0.0
A	AMDAHL CORP	28	16	18.625	-0.8	-3.9
Q	APOLLO COMPUTER INC	17	7	8.5	-0.3	-2.9
Q	APPLE COMPUTER INC	48	35	36	-0.8	-2.0
N	BOLT BERANEK & NEWMAN	19	9	9.5	-0.1	-1.3
Q	BRITTON LEE INC	4	2	3.188	0.0	0.0
N	COMPAQ COMPUTER CORP	76	47	66.75	-1.8	-2.6
Q	COMPUTER AUTOMATION INC	14	3	4.875	-0.5	-9.3
Q	CONCURRENT COMP CORP	7	4	4.875	-0.5	-9.3
N	CONTROL DATA CORP	31	16	21.25	0.3	1.2
Q	CONVEX COMPUTER CORP	11	7	11.125	0.1	1.1
N	CRAY RESH INC	89	53	58.25	0.0	0.0
Q	DAISY SYS CORP	12	5	5	-0.8	-13.0
N	DATA GEN CORP	28	17	18.125	-0.6	-3.3
N	DATAPOINT CORP	6	4	3.875	-0.4	-8.8
Q	DELL COMPUTER CORP	13	7	7.125	-0.9	-10.9
N	DIGITAL EQUIP CORP	125	86	110	-3.6	-3.2
N	FLOATING POINT SYS INC	5	2	3	-0.1	-4.0
N	HARRIS CORP	33	25	27.75	-0.5	-1.8
N	HEWLETT PACKARD CO	68	44	54.75	-1.6	-2.9
N	HONEYWELL INC	77	57	62.875	-2.9	-4.4
N	IBM	131	104	119.875	-3.5	-2.8
Q	INFORMATION INTL INC	16	12	14.5	-0.3	-1.7
Q	IPL SYS INC	7	1	6	0.0	0.0
N	MAI BASIC FOUR INC	21	7	9.75	-0.1	-8.0
N	MATSUSHITA ELEC INDL LTD	230	169	189	3.6	2.0
Q	MEGADATA CORP	4	1	1.5	-0.1	-4.0
Q	MENTOR GRAPHICS CORP	37	23	32.25	-1.3	-3.7
N	NBI INC	7	1	1.75	0.0	0.0
N	NCR CORP	70	51	59.625	-1.6	-2.7
N	PRIME COMPUTER INC	21	12	18.875	-0.6	-3.2
Q	PYRAMID TECHNOLOGY	19	10	17.25	-0.5	-2.8
Q	SILICON GRAPHICS CORP	25	14	16.375	-1.6	-9.0
Q	STRATUS COMPUTER	32	21	29	-1.5	-4.9
Q	SUN MICROSYSTEM INC	21	13	17.75	-1.1	-6.0
Q	SYMBOLICS INC	2	1	1.75	-0.1	-3.5
Q	SEQUENT COMPUTER SYS INC	25	14	22.75	0.1	0.6
N	TANDEM COMPUTERS INC	22	12	19.125	-0.3	-1.3
N	TANDY CORP	49	38	42.75	-0.3	-0.6
N	ULTIMATE CORP	16	8	10.625	-0.3	-2.3
N	UNISYS CORP	39	25	28.875	-0.5	-1.7
A	WANG LABS INC	17	8	9.375	-0.1	-1.3
	Software & DP Services					
Q	ADVANCED COMP TECH	4	1	2.875	0.2	7.0
Q	AMERICAN MGMT SYS INC	19	12	17.25	-0.4	-2.1
Q	AMERICAN SOFTWARE INC	19	12	18.125	0.6	3.6
N	ANACOMP INC	12	5	5.25	-0.1	-2.3
Q	ANALYSTS INTL CORP	15	7	13.75	-0.5	-3.5
Q	ASHTON TATE	31	20	21.5	-1.3	-5.5
Q	ASK COMPUTER SYS INC	18	12	15.25	-0.8	-4.7
Q	AUTODESK INC	34	22	29	-0.5	-1.7
N	AUTO DATA PROCESSING	47	35	36.75	-1.0	-2.6
Q	BMC SOFTWARE INC	17	8	15.75	0.4	2.5
Q	BOOLE & BABBAGE INC	15	8	14.25	1.0	7.5
N	BUSINESSLAND INC	15	8	12.625	0.1	1.0
N	COMPUTER ASSOC INTL INC	40	24	34.75	-2.1	-5.8
Q	COMPUTER HORIZONS CORP	12	7	8.375	-0.1	-1.5
N	COMPUTER SCIENCES CORP	55	38	50.375	-0.3	-0.5
Q	CORPORATE SOFTWARE	15	9	10.5	0.0	0.0
N	COMPUTER TASK GROUP INC	17	10	13.25	0.3	1.9
Q	COGNOS INC	9	5	6.875	-0.5	-6.8
Q	COMSHARE INC	26	15	24.5	-1.0	-3.9
N	CULLINET SOFTWARE INC	9	4	5.375	0.5	10.3
Q	DUQUESNE SYS INC	24	16	23	-0.8	-3.2
N	GENERAL MTRS (CLS E)	47	37	43.75	0.0	0.0
Q	HOGAN SYS INC	6	3	4.5	-0.2	-4.0
Q	INFORMIX CORP	25	7	10.125	-0.1	-1.2
Q	INTELLICORP INC	4	2	3.625	-0.1	-3.3
Q	KEANE INC	27	7	24.75	-0.3	-1.0
Q	LOTUS DEV CORP	34	15	21	-1.1	-5.1
Q	MANAGEMENT SCI AMER	14	6	8.25	0.3	3.1
Q	MICRO PRO INTL CORP	4	2	1.938	0.1	3.4
Q	MICROSOFT CORP	71	45	59.25	-0.8	-1.3
Q	MORINO ASSOCIATES INC	20	12	19.5	-0.5	-2.5
Q	NATIONAL DATA CORP	32	19	24.75	-0.1	-0.5
N	ON LINE SOFTWARE INTL INC	14	4	5.125	0.4	7.9
Q	ORACLE SYS CORP	25	15	22.375	-0.1	-0.6
N	PANSOPHIC SYS INC	19	12	14.375	-0.6	-4.2
Q	PHOENIX TECHNOLOGIES INC	19	12	17.625	-0.3	-1.4
Q	POLICY MGMT SYS CORP	27	21	23.75	-2.0	-7.8
Q	PROGRAMMING & SYS INC	18	10	17.5	0.5	2.9
Q	RABBIT SOFTWARE INC	3	2	2.625	0.0	0.0
Q	RELATIONAL TECHNOLOGY INC	21	12	14	-1.4	-8.9
N	REYNOLDS & REYNOLDS CO	29	17	27	-0.5	-1.8
Q	SEI CORP	22	16	16.25	-0.5	-3.0
Q	SHARED MED SYS CORP	26	14	17.5	-0.5	-2.8
Q	SAGE SOFTWARE INC	9	5	8.625	-0.3	-2.8
Q	SOFTWARE PUBG CORP	27	13	16.75	0.0	0.0
A	STERLING SOFTWARE INC	9	5	6.5	0.0	0.0
Q	SUNGARD DATA SYS INC	20	14	15	-0.5	-3.2
Q	SYSTEMATICS INC	34	26	32.5	-0.3	-0.8
N	SYSTEM CENTER INC	21	12	19.875	0.3	1.3
N	SYS. SOFT INC	26	9	22.5	-0.5	-2.2
	Semiconductors					
N	ADV MICRO DEVICES INC	17	7	8.125	-0.5	-5.8
N	ANALOG DEVICES INC	16	10	11.625	-0.4	-3.1
Q	ANALOGIC CORP	10	6	8.625	-0.3	-2.8
Q	CHIPS & TECHNOLOGIES INC	21	11	17	0.0	0.0
Q	INTEL CORP	37	19	25.875	0.6	2.5
Q	LSI LOGIC CORP	14	8	10.375	-0.5	-4.6
Q	MICRON TECHNOLOGY INC	26	15	18.875	-1.0	-5.0
N	MOTOROLA INC	55	36	42.125	-0.9	-2.0
N	NATL SEMICONDUCTOR	15	8	8.25	-0.1	-1.5
N	TEXAS INSTRS INC	57	35	40	-1.1	-2.7
A	WESTERN DIGITAL CORP	18	12	12.375	-0.3	-2.0
	Peripherals					
Q	ALLOY COMP	5	2	2	0.0	0.0
N	AM INTL INC	6	3	5.625	-0.1	-2.2
Q	AST RESH INC	17	7	7.25	-0.3	-3.3
Q	AUTO TROL TECH CORP	6	4	5.125	0.1	2.5
Q	BANCTEC INC	12	8	11.375	-0.1	-1.1
Q	CIPHER DATA PRODS INC	11	8	10.125	-0.6	-5.8
A	COGNITRONICS CORP	4	2	3.375	0.1	3.8
Q	CONNOR PERIPHERALS	10	7	7.625	-0.3	-3.2
A	DATAPRODUCTS CORP	18	9	16.5	-0.4	-2.2
A	DATARAM CORP	9	6	9	0.4	4.3
N	EASTMAN KODAK CO	50	39	45.625	-2.4	-4.9
Q	E M C CORP MASS	19	4	4	-0.3	-5.9
Q	EMULEX CORP	12	8	10.625	-0.3	-2.3
Q	EVANS & SUTHERLAND	22	13	17.25	0.5	3.0
Q	ICOT CORP	5	2	2.5	0.3	11.1
Q	INTERLEAF INC	21	6	8.5	0.3	3.0
Q	IOMEGA CORP	5	2	2.188	0.3	12.9
Q	LEE DATA CORP	4	3	2.75	0.0	0.0
Q	MASSTOR SYS CORP	4	2	2.938	0.1	4.4
Q	MAXTOR CORP	16	6	8.5	-0.6	-6.8
Q	MICROPOLIS CORP	30	6	6.375	-0.1	-1.9
Q	MINISCRIBE CORP	14	4	4.125	0.1	3.1
N	MINNESOTA MNG & MFG CO	70	57	65	-1.6	-2.4
Q	PERSONAL COMPUTER PRODUCTS INC	7	4	4	0.0	0.0
Q	PRIAM CORP	3	1	0.688	-0.1	-8.3
Q	PRINTRONIX INC	11	7	7.25	-0.1	-1.7
N	QMS INC	12	6	8.375	0.0	0.0
Q	QUANTUM CORP	16	10	16.25	0.3	1.6
N	RECOGNITION EQUIP INC	12	6	10	0.1	1.3
Q	REXON INC	9	4	7	0.0	0.0
Q	SEAGATE TECHNOLOGY	23	7	10.875	-0.4	-3.3
N	STORAGE TECH CORP	4	1	1.75	0.1	7.7
Q	TANDON CORP	3	1	1	0.0	0.0
N	TEKTRONIX INC	30	19	21.75	0.3	1.2
Q	TELEVIDEO SYS INC	1	0	0.375	0.0	0.0
N	XEROX CORP	67	50	60.25	-2.0	-3.2
	Leasing Companies					
Q	AMPLICON INC	20	13	19.25	0.3	1.3
N	CAPITAL ASSOCIATES INTERNATIONAL INC	7	4	6	-0.6	-9.4
N	COMDISCO INC	26	19	23	-0.8	-3.2
Q	CONTINENTAL INFO SYS	9	0	0.438	-0.1	-12.4
Q	LDI CORPORATION	16	10	14.5	-0.3	-1.7
Q	PHOENIX AMERN INC	5	3	3.75	0.1	3.4
Q	SELECTERM INC	7	4	6.75	0.4	5.9

EXCH: N = NEW YORK; A = AMERICAN; Q = NATIONAL

Marching down

As winter poured it on, tech stocks headed down to the cellar

Erratic weather in the air and on the Street marked the beginning of March last week. The debut of Novell, Inc.'s much-publicized Portable Netware product was well received, but analysts' skittishness over the probable impact on earnings of the company's phaseout from the hardware market dampened Netware's parade. Novell stock closed Thursday at 34¾, down 1⅞ points.

Competitors 3Com Corp. and Microsoft Corp., on the other hand, benefited from renewed interest in micro-to-minicomputer connectivity. 3Com picked up 1½ points to close at 28⅛. Microsoft briefed analysts on its plans for the coming year and sent them home in an upbeat frame of mind: Its stock rose 3 points to a 60¾ Thursday close.

With market observers continuing to question the soundness of recent corporate strategic moves, Apple Computer, Inc. continued downward, losing an additional point to close on Thursday at 35. Intel's powerful new reduced instruction set computing chip boosted its stock 1½ points to 26½. Storage Technology Corp. announced a 58% jump in net income for its year ended in December; its stock closed at 2⅛, up ¼ of a point.

NELL MARGOLIS

NET enlists Cisco as LAN ally

BY ELISABETH HORWITT
CW STAFF

REDWOOD CITY, Calif. — Recovering from an unsuccessful attempt to acquire local-area network vendor Excelan, Inc. last summer, Network Equipment Technologies, Inc. (NET) is mustering another attack on the LAN interconnectivity market — this time with Cisco Systems, Inc. as its partner.

The two companies announced an OEM and technology agreement last week under which NET will initially resell Cisco's line of routers and bridges and eventually integrate the products into its own line of T1 switches. The move is in response to increasing customer demand for transparent access to resources across geographically distributed LANs, according to NET product manager Julie Dmytryk.

While bridge vendors abound, Cisco is one of just a few companies that sell true routers, according to Dmytryk.

Unlike bridges, routers can make intelligent use of the addressing, security and management capabilities of specific types of networking systems such as Transmission Control Protocol/Internet Protocol (TCP/IP) and Digital Equipment Corp.'s Decnet, according to Dmytryk.

These features are crucial to NET users who need to coordinate communications across increasingly complex T1 networks, she added.

Broad protocol support

Cisco's routers stand out from the competition by virtue of their broad protocol support, Dmytryk said. The products currently support TCP/IP, Decnet and Xerox Corp.'s Xerox Network Systems. They will support Open Systems Interconnect by the third quarter and Fiber Distributed Data Interface by early next year, a company spokesman said.

The agreement with Cisco will provide NET with a much-needed entry point into the burgeoning internetworking market, which will expand from $58 million in 1987 to $544.8 million in 1991, according to a December 1987 report by market research firm Forrester Research, Inc. in Cambridge, Mass. Forrester will adjust these figures upward, if at all, in this year's report, Forrester analyst Mary Modahl said.

NET needs to make its move quickly because rivals such as Digital Communications Associates, Inc., Infotron Systems Corp. and Newbridge Networks, Inc. are already providing bridges as a way to generate more data traffic over their T1 switches, Modahl said. NET also needs to differentiate its products from the competition, she added. The companies said they will elaborate on their plans for integration of NET switches and Cisco routers sometime in the spring.

Suppliers play catch-up with IBM AS/400 cuts

BY ROSEMARY HAMILTON
CW STAFF

Third-party IBM Application System/400 memory suppliers are scrambling to match the 40% price cuts that IBM unexpectedly announced late last month.

IBM's move caused at least two suppliers to redo their math on the eve of product announcements last week.

EMC Corp. had planned to jump into the AS/400 memory market last week by introducing a $16,000 8M-byte board but instead made its debut with a $9,600 8M-byte board. IPL Systems, Inc., which had planned to introduce a 16M-byte board in the $30,000 range, came out with a $20,000 board last week.

The upset comes early in the life of the third-party AS/400 market. Only a handful of companies have been shipping memory products. IPL, one of the first out with an 8M-byte card in late 1988, has about 50 customers so far, said Robert Berg, IPL's vice-president of sales.

In addition to cutting the price on the 16M-byte card, IPL copied IBM's 40% reduction on its 8M-byte card and will now sell it for $10,000, down from $17,000. IPL's revised price comes in at $2,000 less than IBM's revised price.

Locom Corp., another memory supplier, also dropped its prices by 40% last week. The company will now sell 8M-byte boards for $7,000 instead of $12,000 and 16M-byte boards for $14,000, down from $24,000.

User appeasement

Consultants and suppliers said IBM's pricing move was meant to appease users who have been complaining about the AS/400's memory requirements. It was not intended to bash third-party competitors, although it consequently did, they added.

Michael Egan, vice-president of midrange marketing at EMC, said he has lived through hundreds of price cuts, but "this is the first time I've seen such a big reduction."

"This surely has a profit-margin impact," Berg said. "It's not unprofitable but is certainly less so."

Consultants said that several third-party suppliers will be hard-pressed to offer greatly reduced prices on a per-megabyte basis, which may hurt them in small volume sales.

With the price cut, IBM is now offering memory at $1,500 per megabyte. EMC is selling at $1,250, and IPL sells at $1,200.

Database

FROM PAGE 1

will feed data on air and soil temperature, humidity and movement over a 10M bit/sec. IEEE 802.3 fiber-optic local-area network to the database.

The database will be spread over 20 Hewlett-Packard Co. 9000 file servers and will be accessed by those inside the experiment as well as by researchers on the outside.

Large animals and plants will be tagged with bar codes, according to a source close to the installation. "We decided not to bar-code the insects," the source added.

While not yet completely designed or implemented, the database will allow users to find current status and historic information on each of the 3,800 species expected to reside in the experiment. Software for the project is a mix of in-house-developed programs and customized off-the-shelf products such as an industrial process and control platform tweaked to monitor the lake and ocean water as well as humidity in the air.

Scientists from around the country and as far away as London have been building the database of flora and fauna through dial-up electronic messaging.

An HP 3000 minicomputer running a proprietary operating system is being used for administrative management.

Those who are employed by the venture and live within its confines appear confident that their massive databases will help them determine the necessary species and their proper quantities to get the experiment through two years. If they are correct, or close enough, it could proffer not only environmental information for survival of the Earth but also potential for survival beyond the Earth.

"In many cases, the plants are rare, or rare in the U.S., so you need to know the diseases they're susceptible to and how to take care of them," said Kathleen Dyhr, the project's director of information systems. With the database being built, all one needs to do is execute a search for the information.

vast desert north of Tucson, Ariz. At the low end of the structure will be a wet-climate desert moving to a savannah and marsh and then to a freshwater lake. Since the superstructure's greenhouse ceiling rises with each biome, each contains a more humid environment.

Following the lake environment is a saltwater ocean complete with wave action. The uppermost biome is a rain forest intended to recycle the atmospheric water back into a stream feeding the ocean and lake.

Structural design is being performed in MS-DOS on 10 of the venture's 50 PCs, said Norberto Alvarez-Romo, director of cybernetic systems. "We looked at Unix for the design work, but the applications are so many years behind DOS," he said.

Additionally, there are 20 HP 9000 Unix-based file servers and one HP 3000 with a proprietary operating system. The minicomputer runs accounting, cost control and data acquisition through remote sensors.

Alvarez-Romo, who is also a Biospherian candidate, describes his 50-CPU network as a supercomputer that does not reside in one place but "is all around you."

While budgetary restraints are not Alvarez-Romo's major concern, he said he is happy he does not have an unlimited budget. If he did, he said he would probably spend it on methods to gather more data, and its volume would become unmanageable.

As it is, filtering data down to a manageable level and networking the results to determine relevant interrelationships takes up the majority of system time.

Trying to pinpoint where to stop or start gathering data is Alvarez-Romo's special skill and a potential pitfall, he said. "You have to find areas where a small intervention makes a big difference," he said. If it makes too much or too little difference, the project may fail.

The government, particularly the National Aeronautics and Space Administration, is watching carefully.

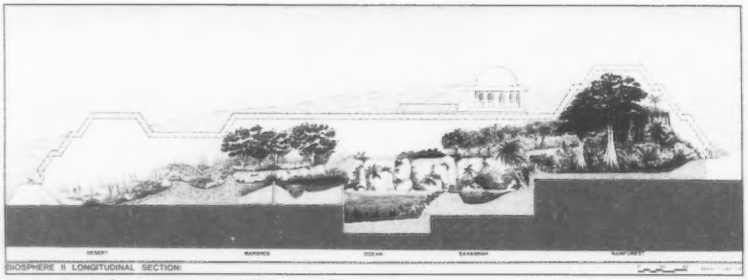
NASA has several interests in the project, according to Bill Wolverton, senior research scientist at Stennis Space Center in Mississippi. First and foremost is the experiment's applicability to space stations. Second, the administration is interested in technology transfer.

"We could use the applications for addressing indoor air pollution, the greenhouse effect and recycling waste through plants," Wolverton said.

While Wolverton personally is thrilled with Biosphere II, "there are mixed emotions in NASA about the project," he said. "There are always skeptics."

The $30 million project is underwritten with venture capital. Dyhr reported there are two patents pending on water- and air-purification devices developed for the experiment.

The project will not be open to the public until it is complete. There is, however, a public conference center on the site.



Space Biospheres Ventures' *Biosphere II terrarium*

Once inside the terrarium, each Biospherian will have his or her own personal computer, networked not only to the flora and fauna database but to most information services imaginable.

Dyhr, one of 14 candidates to be a Biospherian, anticipated spending Sunday mornings with the electronically provided *New York Times* and the single cup of coffee allotted per person per week — grown from the enclosure's 10 coffee trees.

The long substructure of the terrarium is nearly in place in a

Novell puts LAN foot down

BY PATRICIA KEEFE
CW STAFF

BOSTON — Don't tread on me.

Perhaps taking heed of that early revolutionary motto, Novell, Inc. teamed up with an army of systems vendors and software developers at Networld '89 Boston last week and served notice to critics that it intends to be a force in the multivendor connectivity arena.

Despite the pending assault of new technologies, such as Microsoft Corp.'s OS/2 LAN Manager and IBM's OS/2 Extended Edition, Novell made clear that it does not intend to retreat, analysts said. Novell controls at least 50% of the local-area network market.

As was expected, Novell unwrapped its big gun — a portable version of its Netware network software that will transparently link proprietary host and Unix-based systems to Netware LANs [CW, Feb. 20].

The linchpin in Novell's Open Systems strategy was co-developed with Prime Computer, Inc. and NCR Corp. Prime will provide the Intel Corp. 80386 port, while NCR will tackle Motorola, Inc.'s 68000 chip.

Taking a page from rival 3Com Corp.'s battle plan, Novell's Portable Netware purports to provide a scalable server architecture capable of supporting file and resource sharing between the four client branches — Unix, OS/2, MS-DOS and Apple Computer, Inc. Macintoshes — while talking to a range of servers and hosts.

Pledge of allegiance

Portable Netware has so far amassed allegiance from 23 companies — including the likes of Northern Telecom, Inc., Intel Corp., Data General Corp., Sun Microsystems, Inc., Hewlett-Packard Co. and Unisys Corp.

Support comes in the form of two wide-area links that will better tie Netware-based LANs into geographically dispersed enterprisewide networks. These products include support for up to 15 remote PCs to simultaneously access Netware resources through a single server via dial-up modems and a bridge that provides fractionalized T1 services, with speeds to 2M bit/sec.

Novell also pounded out plans — but no dates — for Portable Netware to support standards such as Sun's Network File System and the emerging IEEE Posix standard.

One critical area that remains hazy is management of these multiple-platform networks. Both Novell and its allies agreed that this area would have to be addressed, but they did not provide specifics.

In the eyes of many Novell critics, the horizon has looked bleak of late for the Provo, Utah-based vendor. Users are demanding host connectivity on the one hand, while rival Microsoft's OS/2 LAN Manager has continued to rack up impressive support from IBM, HP and Digital Equipment Corp.

Portable Netware is in part Novell's answer to LAN Manager/X, or HP's Unix LAN Manager, analysts agreed.

Many Portable Netware supporters echoed Henry Foxwell, a Unisys spokeman, who said his company cannot afford to ignore Novell's dominance of the LAN market.

Noting that "we all know who the other camp is," Foxwell and others left the door open to link their systems to LAN Manager-based software if customers demand it.

With one glaring departure, the breakdown of LAN Manager vs. Portable Netware supporters seems mostly divided along the battle lines of the Open Software Foundation (AIX Release 3) vs. Unix International (Unix System V), respectively.

OS/2 LAN Manager	Portable Netware
[1]AT&T	Unisys Corp.
IBM (LAN Server)	Sun Microsystems, Inc.
Digital Equipment Corp.	Prime Computer, Inc.
[2]Hewlett-Packard Co.	NCR Corp.
3Com Corp.	Data General Corp.
	Intel Corp.
	Lachman Associates
	[3]Mips Computer Systems, Inc.

[1]AT&T already has Unix server software and plans to incorporate LAN Manager support into the next release. It will bypass HP's Unix port and has no plans to license Portable Netware.
[2]Although an OSF founder, HP is developing LM/X, a Unix port of LAN Manager based on Unix System V. HP plans to migrate to OSF's Unix once it shakes out and is considering licensing Portable Netware.
[3]Mips is an OSF member.

Hackers arrested for alleged Soviet sales

BY MICHAEL ALEXANDER
CW STAFF

Computers have replaced cloaks and daggers in the spy game. West German investigators reportedly arrested three hackers last week for allegedly penetrating military and research computers in the U.S., Western Europe and Japan and selling passwords and other sensitive information to the Soviet Union.

"Until possibly affected components of the Department of Defense have had a chance to analyze the report, we have no reaction," said Jim Turner, a Pentagon spokesman.

Norddeutsche Rundfunk, a television broadcasting network, reported last week that the hackers electronically entered the U.S. Department of Defense's (DOD) general data bank, known as Optimus, and systems at the National Aeronautics and Space Administration, Los Alamos National Laboratory in Los Alamos, N.M., Fermi National Accelerator Laboratory near Chicago and Lawrence Livermore Laboratory in Livermore, Calif. The West German television network alleged that the three hackers were recruited by the KGB in 1985.

The security breaches were first discovered in 1986 by Clifford Stoll, a computer security expert at Harvard University, triggering an international investigation that led to the arrests [CW, Aug. 8, 1988].

For more than a year, Stoll assisted U.S. military intelligence in keeping tabs on one of the hackers as he repeatedly penetrated computer systems at military and research installations.

Thrift crisis

FROM PAGE 1

takeover, analysts said. With little or no advance warning for thrift employees, FDIC conservators have been installed to run operations. Their mandate is to control costs, an FDIC spokesman said.

Adding to MIS uncertainty is the Bush administration's undefined bailout strategy. Currently, the Senate Banking Committee is considering a bailout proposal. But until the president and Congress act, the thrifts remain in limbo.

"They can't even be sold yet," an FDIC spokeswoman said. "They are insolvent until Congress approves the funding to close them."

Despite a business-as-usual appearance at these thrifts, big changes are in store. "The thrift still runs on a day-to-day basis, but the overriding outcome is that the thrift is either going to be sold or dissolved. And with any consolidation, a lot of jobs will be eliminated," said Peter Kovalski, thrifts analyst at William Securities Group, Inc. of Tampa, Fla.

Kovalski said that once the FDIC steps in, one of three scenarios plays out. In rare instances, the thrift is sold to an entrepreneur, and the information systems group remains in place. More likely is the thrift's integration into a larger institution, almost guaranteeing a drastic reduction in IS staff. The last alternative, liquidation, would dissolve the IS staff entirely.

"If a thrift is classified as insolvent or close to it, I would worry and look around [for a job]," Kovalski said.

Other analysts agree that MIS jobs in the savings and loan industry are imperiled. "If they can, the thrift will merge with a healthy one, which would have its own DP. Or they will just liquidate," said Michael Abrahams, a senior analyst covering the thrift industry for Bateman, Eichler, Hill Richards, Inc., a Los Angeles-based brokerage firm.

Unless the thrift is located in the same state as the institution acquiring it, MIS reduction is almost standard policy, said Bob Dygert, vice-president of operating policies of North Carolina National Bank in Charlotte, N.C. "Once we've absorbed the data center and consolidated, paring down becomes standard strategy," Dygert said.

To be expected

An MIS manager in a thrift just taken over by the FDIC looked at the situation philosophically. "Anyone who looks at data processing as a career knows that this is the nature of the beast," he said, adding that he began to keep an eye open for other IS job opportunities once the FDIC stepped in.

Many of these MIS professionals had already been working under tight budgets, which just got tighter. This translates into key projects being quashed and innovative ideas left untried.

Anchor Savings Bank DP supervisor Mark Krebs was hoping to install a system that would automate customer service at 16 branches. "I don't think I'll even try to throw it out," Krebs said, preferring to wait until things settle down before proposing MIS expansion. Anchor, with $840 million in deposits, was taken over Feb. 17.

In order to get approval, new projects must be absolutely essential. "Projects now require regulatory approval from the [FDIC] conservator, and we have to have a compelling reason for the project," said a director of information systems for a government-controlled thrift with more than $1 billion in deposits.

The savings and loan industry's failure is a sensitive subject for many thrift employees. In fact, many MIS managers contacted had been ordered by their FDIC conservator or management not to speak about their thrift's activities. Only in private will they discuss their fears. "If I stick my neck out like that, my head is gone," said one MIS director seeking anonymity. "There is a lot at stake for this institution, where public opinion is concerned."

Second-class postage paid at Framingham, Mass., and additional mailing offices.
Computerworld (ISSN 0010-4841) is published weekly, with a single combined issue for the last week in December and the first week in January of 1989 by CW Publishing/Inc., 375 Cochituate Road, Box 9171, Framingham, Mass. 01701-9171.
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TRENDS

Federal midrange market

AT&T got some good press last year when it won a coveted U.S. Air Force minicomputer contract, but Digital Equipment Corp. actually has been the most successful vendor in selling midrange systems to the federal government.

According to Computer Intelligence, a La Jolla, Calif., market research firm, DEC has a 49% share of the federal market for midrange systems, far ahead of IBM's 13% share and Data General Corp.'s 11% share in that category. Following DG are Wang Laboratories, Inc., Hewlett-Packard Co. and Unisys Corp.

For this study, DEC's midrange is defined as including all Microvaxes and VAXs, except for the Microvax 2000 workstations. The IBM midrange includes the 4300 and 9370 models of the 370 architecture, as well as the Application System/400 and System/34, 36 and 38 minicomputers.

Overall, the government is by far the single largest buyer of VAX systems. About 9% of all VAX and Microvax systems in the U.S. are installed at federal sites, Computer Intelligence reported.

The government's VAX buying plans are similar to the commercial sector's, except that the VAX 8000 series figures more heavily in its buying plans. Federal agencies reported that the VAX 8000 series will make up 35% of their planned VAX purchases, said David Eulitt, a Computer Intelligence analyst.

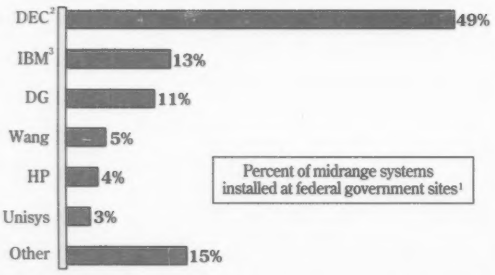
The defense agencies account for 42% of the federal VAX sites, the biggest user being the U.S. Navy. But DEC's presence there could wane as military units begin to purchase AT&T's 3B2 minicomputers under the Air Force contract AT&T won last year [CW, Nov. 7, 1988].

The Air Force estimates that military agencies may buy as many as 21,000 units under the AT&T contract. But the contract is what the government calls an indefinite quantity contract — essentially an approved shopping list — so it remains to be seen how many AT&T systems are actually bought.

It appears that DEC's success in selling to the government will continue, Computer Intelligence said. Last May, for example, DEC won an $80 million contract to support the 1990 census with 460 Microvax processing centers and 13 VAX processing centers.

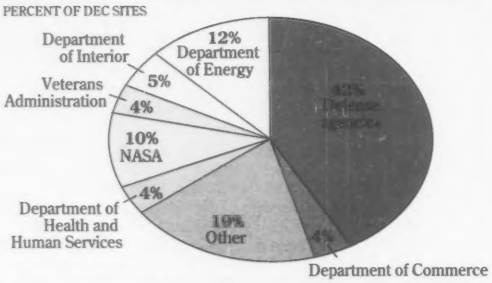
MITCH BETTS

DEC cuts deepest inroads

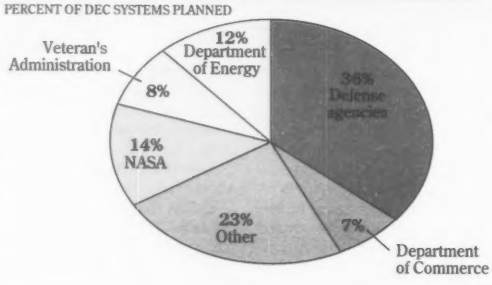


[1] Engineering workstations not included
[2] Includes all VAXs and Microvaxes except Microvax 2000; does not include PDP systems
[3] Includes 4300, 9370, AS/400 and System/36 and 38 lines

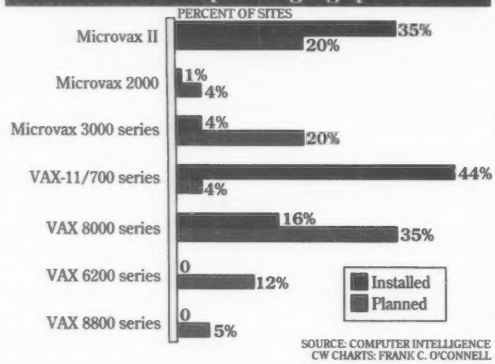
DEC's installed base, by agency



Planned systems, by agency



Newer models replace aging systems



SOURCE: COMPUTER INTELLIGENCE
CW CHARTS: FRANK C. O'CONNELL

INSIDE LINES

Byte heard 'round the world. Apple will unveil a scaled-down version of its Motorola 68030 Macintosh IIX — to be called the Mac IICX — on March 7 in the U.S. and in satellite transmissions broadcast here, there and everywhere. The system will also receive gala treatment that day at the Hannover Faire CeBIT '89 [CW, Feb. 6]. The modular-style Mac IICX will be a three-slot version — half the number of slots offered on other Mac II models — in a smaller footprint. It will be offered in three configurations: a single floppy version with 1M byte of RAM priced at about $4,500, a second configuration with 1M byte of RAM and a 40M-byte hard drive for about $5,000 and a high-end version with 4M bytes of RAM and an 80M-byte hard drive for slightly less than $7,000.

Extended update. For those tracking IBM's road to a database server, here's the latest. Remote Data Services, which allows client workstations to access shared OS/2 Extended Edition databases, is on track for an early fall shipment, according to one IBM Extended maven. IBM is also planning to release some benchmarks from an independent testing lab that show off the Extended's performance. Meanwhile, bulletin boards are abuzz with word of clones that won't run Extended. The word is that BIOS products from smaller vendors can't cut the Extended Edition mustard. IBM, however, maintains that it has not done anything with Extended that would cause problems for true compatibles.

Extending DOS-dom. Lotus is expected to detail its DOS Extender approach later this month, which allows its bulky 1-2-3 Release 3.0 to run under MS-DOS as long as you've got an IBM Personal Computer AT or better. Meanwhile, an upgrade of 1-2-3 Release 2.01, dubbed Release 2.2 and aimed at low-end PCs, moves closer to beta status. Those who have seen the program report a clean, well-mannered program with rudimentary linking capabilities, better memory management and the ability to store macros in separate files while maintaining that legendary Release 2.01 performance.

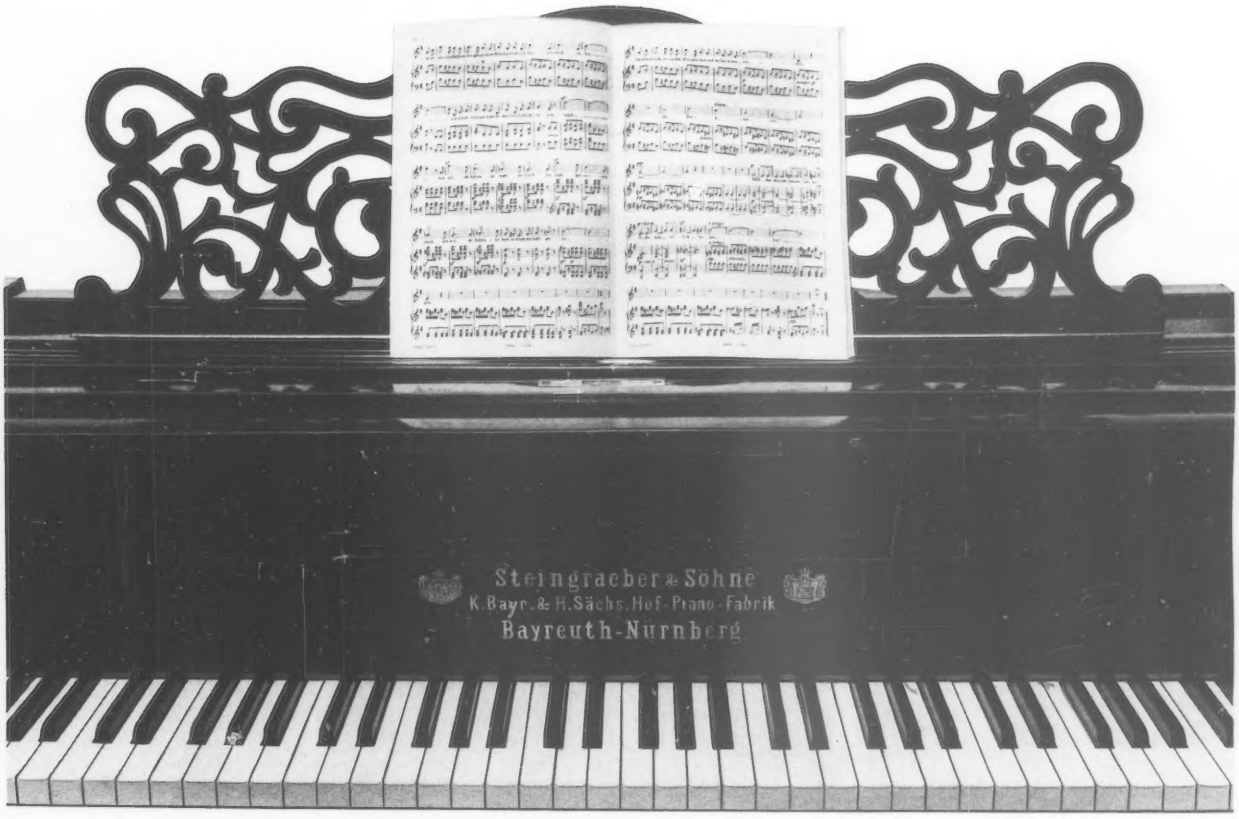
Open and closed. X/Open's board met last Friday to vote on a request by the Open Software Foundation to become a member of the standards consortium. While hoping to expand participation by accepting end-user organizations and software developers as board members, X/Open officials have downplayed the possibility of either Unix International or OSF joining the group. According to a source close to X/Open, the consortium would have to bend the rules a little to accept OSF, a development organization.

Supermini slump. The latest company to feel the pinch of the soft minisupercomputer market is San Diego-based Scientific Computer Systems, which has suspended its efforts in that area and scaled back its manufacturing and sales departments. While the company says it will continue to fulfill its maintenance obligations, officials said it will concentrate more of its efforts in its Vectornet division.

Will the real interface please shut up? Both Northern Telecom and AT&T have promised their users imminent delivery of software links that will let them dial up a variety of computer databases and applications from their private branch exchanges (PBX). Those links will most likely run on Integrate Services Digital Network but will only work with each vendor's own PBX. Both vendors claim to support a true computer-to-PBX standard, but each is gathering allies for its own version of the interface in the meantime.

In the "this sounds familiar" department, a source close to Ashton-Tate has sniffed out a few problems with Dbase IV 1.1; that's the important version that's supposed to act as a front end for SQL Server. Apparently, technical difficulties with the SQL implementation and bug fixes make a spring shipment darn near impossible, and our sources say summer or fall is more likely. As soon as any beta-test site knows better, call in the details to the hot line, 800-343-6474 or 508-879-0700 or call our new bulletin board at 508-626-0165, and News Editor Pete Bartolik will make sure the news troops give Ashton-Tate an even break.

Play it Again, Sam!



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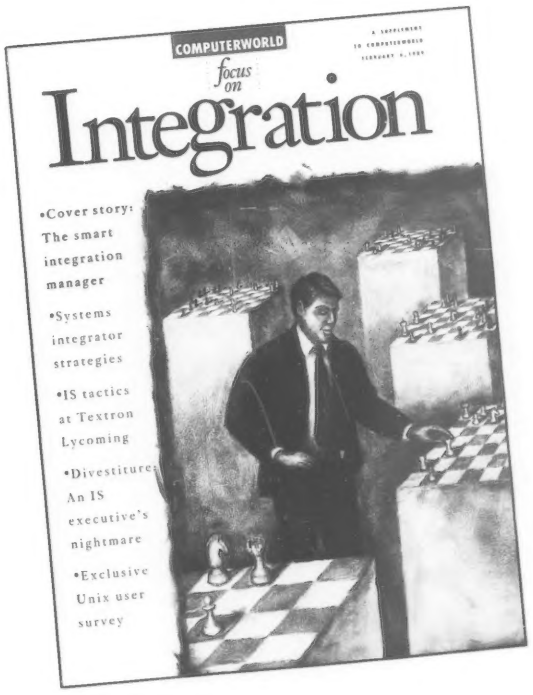

About The Adams Company 1988 Study

The 1988 "Information Systems Management Study" is the second syndicated research study undertaken by The Adams Company (the first was in 1986). The primary objective of the study was to measure the readership levels of 12 leading publications among key information systems executives.

The sample was drawn from three computer site database files: the International Data Corporation file, the Computer Intelligence file and the Focus Research file. These databases were chosen to equally represent the distribution of computer sites by "dollar value" and to eliminate any potential list bias. After the three files were merged/purged, a quota sample of 6,570 names was randomly chosen for the mailing. The final sample included the following executives by job function:

Top MIS/DP Executive at Site	62.0%
Data Communications Manager	11.7%
Micro/PC Evaluator	11.4%
Data Center Manager	6.1%
Top Applications Manager	5.5%
Info Center Manager	4.5%

Each sample member was sent one of four versions of the questionnaire. Each version displayed a different order in which the publications appeared so any bias response due to the positioning of each publication was minimized.

An alert mailing and two subsequent questionnaire "packets" were sent to try to gain as high a response as possible. There were 3,001 completed questionnaires, yielding a 47.5% response rate.

The research methods employed by The Adams Company in the design and implementation of this survey resulted in a high response rate, large bases and unbiased data. The results, therefore, are reliable and accurate for use in media selection and evaluation in the information systems marketplace.

Kathy Dinneen
Vice President/Research
–IDG Communications Research Services

Total Respondents in Selected Job Function(s)

Total

	Computerworld	Information-WEEK	Data-mation	PC Week	Base
MIS/Information Sys. Management	50.1%	38.5%	36.0%	29.3%	1,651
Data Processing	46.1	28.1	29.8	23.2	1,337
Data Communications	49.8	34.2	33.4	29.3	928
Micro/Info Center Management	47.4	36.9	32.9	47.0	677
Telecommunications	51.4	36.0	34.3	30.0	597
System Design/ Integration	48.9	31.5	31.6	29.1	626

Read: "Of the 1651 respondents (based on average issue audience) in MIS/Information Systems Management, 50.1% have read or looked into *Computerworld* in the last six months; 38.5% have read or looked into *InformationWEEK* in the last six months," and so on . . .

Companies with 1,000+ Employees

	Computerworld	Information-WEEK	Data-mation	PC Week	Base
MIS/Information Sys. Management	56.0%	52.5%	40.4%	35.3%	866
Data Processing	55.8	42.8	33.8	29.4	565
Data Communications	53.4	43.7	34.1	32.5	492
Micro/Info Center Management	48.4	44.9	32.7	51.1	401
Telecommunications	56.4	45.4	33.4	32.8	335
System Design/ Integration	52.3	43.3	31.0	37.7	300

"Looking only at those respondents (based on average issue audience) who work at companies with more than 1,000 employees, 56.0% of the 866 respondents in MIS/Information Systems Management have read or looked into *Computerworld* in the last six months; 52.5% have read or looked into *InformationWEEK* in the last six months," and so on . . .

Total Respondents with Selected Purchase Decision Influence

Total

	Computerworld	Information-WEEK	Data-mation	PC Week	Base
Mainframe Computers	58.0%	45.6%	42.6%	32.5%	933
Minicomputers/ Superminis	46.7	35.5	33.6	31.5	1,190
PCs	44.0	32.3	30.9	36.4	1,998
Computer Terminals	46.9	33.2	32.0	28.4	1,922
Data Communications Equip./Systems	50.1	39.0	35.3	33.7	1,393
Mainframe/Mini Systems or Utility Software	51.3	37.4	36.1	31.0	1,435
Mainframe/Mini Applications Software	48.2	36.0	33.9	30.7	1,366
PC Software	43.7	32.5	31.1	37.8	1,764

Read: "Of the 933 respondents (based on average issue audience) who have purchase decision influence for mainframe computers, 58.0% have read or looked into *Computerworld* in the last six months; 45.6% have read or looked into *InformationWEEK* in the last six months," and so on . . .

*Data on this page is based on initial "Topline" report issued by The Adams Company.

Companies with 1,000+ Employees

	Computerworld	Information-WEEK	Data-mation	PC Week	Base
Mainframe Computers	60.7%	54.7%	46.4%	35.4%	601
Minicomputers/ Superminis	53.8	49.6	39.2	38.0	613
PCs	51.1	46.1	35.9	44.3	1,003
Computer Terminals	54.1	48.0	37.6	35.3	910
Data Communications Equip./Systems	53.3	49.6	38.6	37.8	805
Mainframe/Mini Systems or Utility Software	55.6	49.7	39.8	36.7	771
Mainframe/Mini Applications Software	54.8	51.6	39.1	37.8	680
PC Software	50.0	45.6	35.2	46.1	885

"Looking only at those respondents (based on average issue audience) who work at companies with more than 1,000 employees, 60.7% of the 601 respondents who have purchase decision influence for mainframe computers have read or looked into *Computerworld* in the last six months; 54.7% of the 601 respondents have read or looked into *InformationWEEK* in the last six months," and so on . . .